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EDIBLE BRITISH MOLLUSCA.

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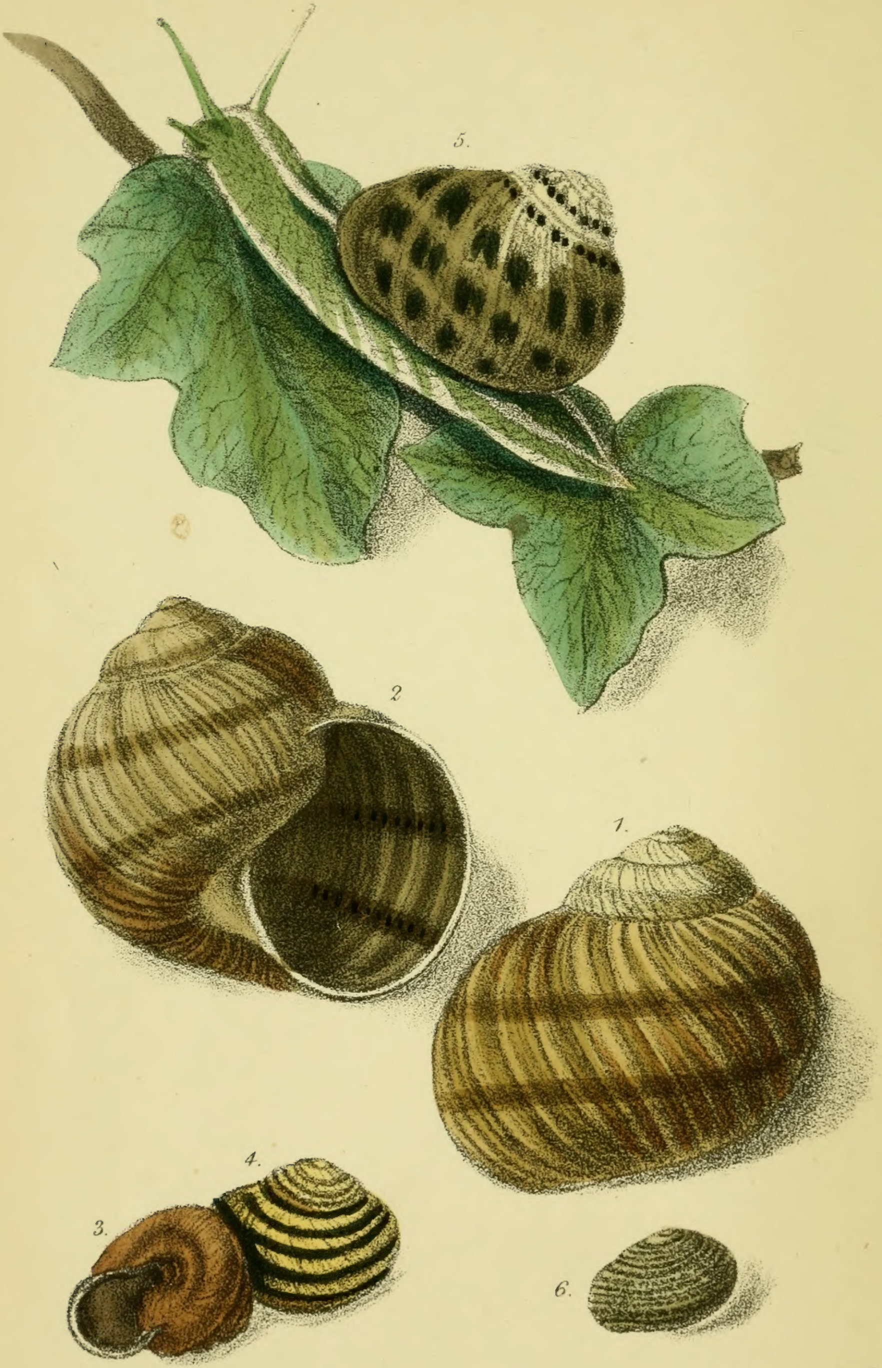

del._G.B. Sowerby, lith.

Vincent Brooks, Imp.

1 & 2. Helix Pomatia_Apple or Vine snail.
3 & 4. Helix Nemoralis_Wood snail.
5. Helix Aspersa_Common Garden snail.
6. Helix Pisana_the Banded snail.

THE EDIBLE MOLLUSCA

OF

GREAT BRITAIN AND IRELAND

WITH

Recipes for Cooking them.

BY

M. S. LOVELL.

> "And the recipes and different species of dressings
> I was prepared to teach the world for cooking,
> If men are only wise enough to learn."
>
> ATHENÆUS. Deipnos. [illegible]

SECOND EDITION.

LONDON:
L. REEVE AND CO.,
5, HENRIETTA STREET, COVENT GARDEN.
1884.

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PREFACE.

In these days, when attention has been so much directed towards the cultivation of the common kinds of eatable shell-fish, it is surprising that the importance of certain others for food has been hitherto almost entirely overlooked. We understand the good qualities of oysters, cockles, and a few other kinds; but some equally nutritious (which are universally eaten on the Continent) are seldom, if ever, seen in our markets, or are only used locally as food, and the proper modes of cooking them are scarcely known. I have therefore endeavoured to call attention to all the eatable species common on our coasts, and also to those which, though not found here in abundance, might be cultivated as easily as oysters, and form valuable articles of food.

M. S. LOVELL.

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EDIBLE BRITISH MOLLUSCA.

PIDDOCKS, GAPERS, RAZOR-FISHES, ETC.

Fam. PHOLADIDÆ.

PHOLAS.—PIDDOCK.

Pholas Dactylus, Linnæus. *Piddock or Clam.*—Shell equivalve, oblong-ovate, gaping chiefly anteriorly, inequilateral, thick, white exteriorly and inside polished; exterior covered with longitudinal furrows and concentric striæ, with sharp radiating spines; no hinge; beaks hidden with callosities; a flattened spoon-shaped tooth, which curves forward, in each valve; accessory valves four in number.

The perforating powers of the *Pholas* have for a length of time been a subject of discussion amongst naturalists, and appear likely to continue so. Some thought that by means of its foot it perforated the soft clay or stone which hardened round it; and a Dutch philosopher named Sellius, nearly 130 years ago, published an account of the *Teredo*, wherein he showed that its shell could not be the instrument of perforation, and asked how it was possible that the extremely tender shell of the young *Teredo* could make a hole in solid oak—a material ten times harder than itself. He also observed that the form of the tube is evidently not the result of an auger-like instrument, because it is broader at the bottom than at the top and sides.

Dr. J. G. Jeffreys, who quotes the above in his 'British Conchology,' agrees with Sellius that the foot or muscular disk, and not the shell, is "the sole instrument of perforation by the mollusca of stone, wood, and other substances, which is closely applied to the concave end of the hole, and is constantly supplied with moisture through the glandular tissues of the body." He adds, "By this simple, yet gradual process, the fibres of wood or grains of sand-stone may easily be detached or disintegrated, time and patience being allowed for the operation." Some naturalists believe that it is accomplished by means of an acid contained in the fish, by which it dissolves the calcareous rocks; while others maintain that the *Pholas* bores by using its shell as a rasp. This mechanical process is fully described by "Astur," who, from his own observations, has endeavoured to solve the problem, and who, to quote the late Mr. Buckland's words, is apparently the only person "*who has ever seen the Pholas at work.*" In the 'Field,' "Astur" published some time since an interesting description of the method by which this mollusk bores its habitation. He says, "Having procured several of these mollusks in pieces of timber, I extracted one, and placed it loose in my aquarium, in the vague hope that it would perforate some sandstone on which I placed it. It possessed the powers of locomotion, but made no attempt to bore. I then cut a piece of wood from the timber in which it had been found, and placed the *Pholas* in a hole a little more than an inch deep. Its shell being about two inches long, this arrangement left about an inch and three-quarters exposed. After a short time the animal attached its foot to the bottom of the hole, and commenced swaying itself from side to side, until the hole was sufficiently deep to allow it to proceed in the following manner. It inflated itself with water apparently to its fullest extent, raising its shell upwards from the hole; then, holding by its muscular foot, it drew its shell gradually downwards. This would have produced a perpendicular and very inefficient action, but for a wise provision of nature. The edges of the valves are not joined close together, but are connected by a membrane; and, instead of being joined at the hinge, like ordinary bivalves, they possess an extra plate attached to each valve of the shell, which is necessary for the following part of the operation. In the action of boring, this mollusk, having expanded itself with water, draws down its shell within the hole, gradually closing the lower anterior edges, until they almost touch. It then raises its shell upwards, gradually opening the lower anterior edges and closing the upper, thus boring both upwards and downwards. The spines (points) on the shells are placed in rows, like the teeth of a saw; those toward the lower part being sharp and pointed, whilst those above, being useless, are not renewed. So far for the operation of boring; but how to account for the holes fitting the shape of the animal inhabiting them? To this I fearlessly answer, that this is only the case when the *Pholas* is found in the rock which it entered when small. This mollusk evidently bores merely to protect its fragile shell, and not from any love of boring; and in this opinion I am borne out by my own specimens. The young *Pholas*, having found a substance suitable for a habitation, ceases to bore immediately that it has buried its shell below the surface of the rock, &c. It remains quiescent until its increased growth requires a renewal of its labours. It thus continues working deeper and deeper, and, should the substance fail or decay, it has no alternative but to bore through, and seek some fresh spot where it may find a more secure retreat."

At Amroth, near Tenby, is a submerged forest, the trees of which are completely perforated by the *Pholas*; and at spring-tides fine specimens may be collected. Montagu remarks that, whilst it is the general habit of shipworms (*Teredo navalis*, or *Teredo norvegica*) to bore parallel with the grain, the *Pholas* perforates the wood across the grain.*

Dr. J. G. Jeffreys mentions that Redi, in a letter to his friend Megalotti, describes the *Teredo* as being not only eatable, but excelling all shellfish, the oyster not excepted, in its exquisite flavour. Nardo also praises it, and wonders why the Venetians, who call it *Bisse del legno*, do not eat it.†

The German name for the *Pholas* is very appropriate, viz., *die Bohrmuschel, Steinbohrer*, or pierce-stone; in France it is called *le Dail commun, Gite*, or *Pitau*; in Spain, *Folado, Almeixa-bravas*; in Minorca, *Peus de cabra* and *Datil del mar*; and in Sicily, *Dattoli di mari*.

An old fisherman told me that the *Pudworm*, as he called it, was a very delicate fish; and he had often noticed on the Hampshire coast, that at low spring-tides in the winter, when sharp frosts set in, and when that part of the shore where these mollusks bury themselves, is left exposed by the tide, they are all killed. He was in the habit of collecting the *Pholas dactylus* as bait for white fish, digging them out of the clay or shale; and he added that if he kept them a day or so before using them, they changed colour, and shone like glowworms, even shone quite brightly in the water, some distance below the surface, when put on the hooks for bait. This reminds me of the following quaint lines in Breton's 'Ourania,' quoted in Daniel's 'Rural Sports:'—

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* Forbes and Hanley, 'British Mollusca.'

† 'British Conchology,' vol. iii. p. 159.

> "The glowworme shining in a frosty night
> Is an admirable thing in Shepheard's sight.
> Twentie of these wormes put in a small glasse,
> Stopped so close that no issue doe passe,
> Hang'd in a *Bow-net* and suncke to the ground
> Of a poole or lake, broad and profound,
> Will take such plentie of excellent fish
> As well may furnish an Emperor's dish."

The luminosity of the *Pholas* after death is referred to by Pliny, who says, "The *onyches* shine in the dark like fire, and in the mouth even while they are eaten;"* and, "that it is the property of the *dacytlus* (a fish so called from its strong resemblance to the human nail) to shine brightly in the dark, when all other lights are removed, and the more moisture it has the brighter is the light emitted. In the mouth, even while they are eaten, they give forth their light, and the same, too, when in the hands; the very drops, in fact, that fall from them on the ground, or on the clothes, are of the same luminous nature."†

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* Pliny, 'Nat. Hist.' vol. ii. bk. ix. c. 51. Throughout this volume I have used the translations of Pliny and Athenæus in Bohn's Series of Classical Authors.

† Idem. vol. ii. bk. ix. c. 87.

Costa, as quoted by Dr. J. G. Jeffreys in his 'British Conchology,' says that it is so phosphorescent, that if the flesh is chewed and kept in the mouth, the breath becomes luminous and looks like a real flame.

Dr. Coldstream states that "the phosphorescent light of this mollusk is given out most strongly by the internal surfaces of the respiratory tubes, and that it is strongest in summer; and Professor John Müller has observed, that when *Pholades* are placed in a vacuum, the light disappears, but reappears on the admission of air; also, that when dried, they recover their luminous property on being rubbed or moistened.*

Many others have also made experiments with the *Pholas*, and have studied its phosphorescence, viz., Réaumur, Beccaria, Marsilius, Galeatus, and Montius. The two first mentioned endeavoured to render this "luminosity permanent, and the best result was obtained by placing the dead mollusk in honey, by which its property of emitting light lasted more than a year. Whenever it was plunged into warm water, the body of the *Pholas* gave as much light as ever."†

Beccaria also found that a single *Pholas* "rendered seven ounces of milk so luminous that the faces of persons might be distinguished by it, and it looked as if transparent."‡

Pholas dactylus, or the *long oyster*, as it is called at Weymouth, is not often eaten in England, but is generally used for bait. A Newhaven fisherman, however, told me they sometimes collect some for eating from the chalk boulders, between Newhaven and

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* Forbes and Hanly, vol. i. p. 107.

† 'Phosphorescence,' by T. L. Phipson, Ph.D., F.C.S., p. 105.

‡ Ibid. p. 104.

Brighton; that they were much more pleasant to the taste than whelks; and they only scald or boil them for a few minutes.

In France, in the neighbourhood of Dieppe, a great many women and children, each provided with an iron pick, are employed in collecting them either for sale in the market or for bait.*

I find from Mr. Morton, of St. Clement's, Jersey, who kindly sent me much information respecting the shell-fishes used as food in the Channel Islands, that in Jersey the *Pholas* is plentiful, and is sold in the market boiled ready for eating. In Spain it is considered as next best to oysters, and is sometimes eaten raw. All the *Pholades* are edible, and a large West Indian species, *Pholas costata*, is much prized, and is regularly sold in the markets of Havana, as we are informed by Forbes and Hanley. Athenæus recommends these shellfish, as they are very nutritious, but he adds that they have a disagreeable smell.†

The *Normandy method* of cooking the *Pholas* (*le dail commun*) is to dress them with herbs and breadcrumbs, or pickle them with vinegar.‡

Large quantities of this fish are sold in the markets of La Rochelle, and Captain Bedford says that the *Pholas crispata* is eaten by the poor of Oban.§

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* 'British Conchology,' vol. iii. p. 102.

† 'Deipnosophists,' vol. i. bk. iii. c. 35, p. 146.

‡ 'Cottage Gardener,' vol. i. p. 382.

§ 'British Conchology,' vol. iii. p. 114.

FAM. MYADÆ.

MYA.—GAPER.

MYA TRUNCATA, Linnæus. *Gaper or Truncated Mya.*—Shell equal-valved, suboval, gaping much at the small end, truncated and swollen at the other, covered with a pale greenish epidermis, which also continues over its long broad tube and mantles; valves wrinkled transversely; beaks depressed; umbones prominent, but unequal; a large spoon-shaped tooth in left valve, with a socket or hollow in the other; ligament internal.

Of the three species of *Myadæ* which inhabit our British seas, two of them are used for food, viz. *Mya truncata* (the one figured) and *Mya arenaria*, which last is much eaten at Naples. At Belfast this shell is called "Cockle brillion,"* evidently the same name as that applied in Brittany to the winkle, viz. *vrélin* or *brélin.* They live buried in the sand or mud, in an upright position, at the mouths of rivers and estuaries near low-water mark, and at low tide their locality is known by the holes in the surface. It requires much labour and patient digging, sometimes to the depth of more than a foot, to procure a dish of these esculents, therefore they are not so common an article of food as others which are more easily gathered. In Orkney, *Mya truncata* is called *Kunyu*, and is not only eaten, but is used as bait for cod-fishing. The Zetlanders call it *Smurslin*, the Feroese, *Smirslingur.* They eat it boiled. In German it is the *Klaffmuschel.* On some parts of the Devonshire coast it is known as the spoon-shell, probably owing to the wide spoon-shaped tooth in the left valve. The length of a full-grown specimen is about 3 inches, by 2½ in breadth. *Mya arenaria* is larger than *Mya truncata,* longer and more pointed at the gaping end, equally coarse and rugged in appearance, its colour varying according to the nature of the soil in which it buries itself. Montagu states that this species is eaten at Southampton, and called "old maid;"* but upon making inquiry there I cannot discover that they are now known by that name. In Chichester harbour and in Fareham Creek the poorer classes collect them for eating, and call them "pullers." At Youghal the name for them is "sugar-loons," and in Dublin "colliers," and at both places they are considered good bait, and fit to eat; but at Youghal they warn you to be careful to take off the skin which covers the outside of the shell and tube, as it is supposed to be poisonous. However, it is probably harmless, except in cases where it causes indigestion; but I believe *Mya arenaria* has been known really to disagree with some people, and Miss Ball mentions a friend being very uncomfortable after eating one. The Hampshire people do not seem to have noticed this peculiarity. I cannot let this opportunity pass without expressing my sincere thanks to Miss Ball for much valuable information, which she kindly sent to me from Ireland, respecting the various edible mollusks.

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* 'British Conchology,' vol. iii. p. 65.

Mya arenaria (*Mye des sables*) may occasionally be seen exposed for sale in the market at Bordeaux.

It is the *Soft Clam* of America, and there it is most highly esteemed as food, and also as bait. Mr. Earll

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* Forbes and Hanley, 'British Mollusca.'

(of the United States Commission) gave some interesting details at one of the Conferences held in connection with the International Fisheries Exhibition, London, 1883, respecting the extent to which *Mya arenaria* is used in the United States. He says, "In the State of Maine 318,000 bushels, or 1,000,000 lbs. of this mollusk were used for bait and for food. In Massachusetts an equal quantity, if not more, and in the Middle States 406,000 bushels, making in all over 1,000,000 bushels, having a value to fishermen of 458,000 dollars. He had not the statistics for Connecticut, Rhode Island, and some of the other States where these shellfish were also used in considerable quantities, but including them it might be said that over a million and a quarter bushels, valued at probably not less than 600,000 dollars, were used on the Atlantic sea-board. . . . Some fishermen on the coast confined themselves to the quarrying, as it was called, of these shellfish, for they had the habit of burying themselves two or three inches deep in the mud or sand of the shallow bays along the shore. This industry afforded employment to a large number of fishermen at a time when nothing else could be done. Some of the smaller vessels, not considered safe to encounter the winter gales, were taken into the shallow waters, and served as hotels and work-houses for the men engaged in quarrying the clams. These men spent two or three months in gathering a vessel-load, shelling them and salting them, to be sold in the early spring to the vessels engaged in the great ocean cod fisheries; whilst large numbers were also engaged during the entire summer gathering them to be sold in the larger markets for food, where they were prized very highly by both rich and poor."* In New York they are sold at three dollars per hundred, and, retail, thirty-five cents per dozen, and are best in cold weather.

Mr. R. E. C. Stearns, in the 'American Naturalist;' May, 1881, mentions the introduction (probably recently) of *Mya arenaria* in the Bay of San Francisco, and that it is now one of the most abundant species of shellfish to be seen in the markets.

Myadæ are widely distributed, and are not only food for man, but for the walrus and other northern animals, besides birds and fishes, which relish them greatly. Captain Tuckey, in his expedition to the river Zaire, or Congo, found that a species of *Mya* was much sought after by the natives, and that three or four hundred canoes were met with near Draper's Islands, in which the people were busily engaged in dragging up these shellfish; having made temporary huts by bending and entwining living branches of trees, besides occupying caverns in the rocks with their families during the fishing-season. The shells were opened, and the fish having been taken out was dried in the sun. The Chinese name for *Mya arenaria* is "Tsé-ga," and they consider it a great delicacy, and they eat it with a seasoning, of which onion is the base.†

A Clam dredger was exhibited at the International Fisheries Exhibition in the Chinese collection. It was a rake, which is fastened round the waist of the fisherman with a rattan band. He walks backwards through the shallow water drawing the rake towards him; and when the iron comes in contact with anything hard he feels with his foot, and if it prove to be a clam, he picks it up and goes on as before.

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* Papers of the Conferences held in connection with the Great International Fisheries Exhibition: 'Mollusks, Mussels, Whelks,' &c. by Charles Harding.

† 'Notice sur la Malacologie du littoral de l'Empire Chinois,' par Odon Desbeau. 'Journal de Conchyliologie,' tome xi. 1863.

Youghal way of Cooking Sugar-loons.—Boil them; take them out of the shell, and eat them with a little butter, taking care to cut off the outside skin.*

Hampshire Method of Cooking Myadæ.—Wash the shells well, then boil quickly for a few minutes; as soon as the shell opens, the fish is cooked. Do not let them boil longer, as it makes them hard, and spoils the flavour. A little vinegar and pepper can be added as a relish.

Clam Soup.—Two small bunches of young, soft clams; cut out the round fat parts, chop the hard parts with twenty-five hard clams medium sized; put these into the juice with a little water, and boil from two to three hours, then put in the round parts, with a piece of butter and a little pepper, and boil fifteen minutes; add a pint of hot milk, and let it just come to a boil before serving.†

To Boil soft Clams.—Wash the shells clean, and put the clams, the edges downwards, in a kettle; then pour about a quart of boiling water over them; cover the pot and set it over a brisk fire for three quarters of an hour; pouring boiling water on them causes the shells to open quickly and let out the sand which may be in them. Take them up when done; take off the black skin which covers the hard part, trim them clean, and put them into a stewpan; put to them some of the liquor in which they were boiled; add to it a good bit of butter, and pepper and salt to taste; make them hot; serve with cold butter and rolls.*

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* Miss Ball.

† 'Every Day's Need.'

Stewed soft shell Clams.—Get fifty clams taken from their shells, and freed from the black skin; wash them well in clear water and put them in a stewpan with very little water; cover and set it over a gentle fire for half an hour; then add to them a bit of butter the size of a large egg, or larger; dredge in a tablespoonful of flour, and salt and pepper to taste; stir it in them; cover the stewpan for ten minutes, then serve hot. Many persons like the addition of a wine-glass of vinegar.†

To Fry soft Clams.—Get them taken from the shell, as they are very troublesome to clean. Wash them in plenty of water, and lay them on a thickly folded napkin to dry out the water; then roll a few at a time in wheat flour, until they will take up no more. Have a thick-bottomed frying-pan one third full of boiling hot lard, and salted (in proportion, a tablespoonful of salt to a pound of lard), lay the clams in with a fork, one at a time; lay them close together and fry gently, until one side is a delicate brown, then turn carefully and brown the other; then take them off and put on a hot dish. When fried properly, these clams are very excellent.‡

FAM. SOLENIDÆ.

SOLEN.—RAZOR-SHELL.

SOLEN SILIQUA, Linnæus. *Razor Shell.*—Shell straight, open at both extremities. Two teeth in left valve, and one in the other; exterior covered with an olivaceous epidermis, concentrically striated. Breadth 1 inch, length from 7 to 8 inches.

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* Mrs. Crowen's 'American Lady's Cookery Book.'

† Ibid.

‡ Ibid.

The *razor* or spout-fishes are all good for food, but *Solen siliqua,* which is the largest of our British species, is the one generally collected for that purpose. *Solen ensis* is eaten in the Feroe Isles, and is there called *Langskoel;* and *Solen marginatus,* commonly known as *Vagina,* is greatly prized as an article of food by the Neapolitans. This last-named species has a wide range abroad, but is not so common in this country as the two above-mentioned shells, though it is abundant in some localities, amongst others Rye, Tenby, and the Channel Islands. In the Isle of Man the razor-fish is called *Eeast-gholvirragh.*

The razor-shell is the *aulo* of the Romans; and Aristotle, in his 'History of Animals,' gives a description of it, stating that "it buries itself in the sand, can rise and sink in, but does not leave its hole, is soon alarmed by noise, and buries itself rapidly; and that the valves of the shell are connected together at both sides, and their surface smooth."*

However, according to Dr. J. G. Jeffreys, the power of locomotion of the *Solen* is not confined to burrowing; as they can dart from place to place in the water as quickly as the scallop, and apparently in the same way.

In the time of Athenæus it was much eaten, and highly valued, if we may judge from the following quotations in his 'Deipnosophists:'—

"Araros says, in his 'Campylion,'—

> "These now are most undoubted delicacies,
> Cockles and solens.

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* Forbes and Hanley, 'Brit. Moll.' vol i. p. 240.

"And Sophron says, in his 'Mimi,'—

> "*A.* What are these long cockles, O my friend,
> Which you do think so much of?
> *B.* Solens, to be sure;
> This, too, is the sweet-flesh'd cockle, dainty food,
> The dish much loved by widows."*

Epicharmus, in his play of the 'Marriage of Hebe,' mentions the oblong solens.

Again, Athenæus says,—"But the *solens*, as they are called by some, though some call them *αὖλοι* and *δόνακες*, or pipes, and some, too, call them *ὄνυχες*, or claws, are very juicy, but the juice is bad, and they are very glutinous. And the male fish are striped, and not all of one colour, but the female fish is all of one colour, and much sweeter than the male; and they are eaten boiled and fried, but they are best of all when roasted on the coals till their shells open. And the people who collect this sort of oyster are called *Solenistæ*, as Phænias the Eresian relates in his book, which is entitled 'The Killing of Tyrants by way of Punishment;' where he speaks as follows:—'Philoxenus, who was called the Solenist, became a tyrant from having been a demagogue. In the beginning he got his living by being a fisherman and a hunter after *solens;* and so, having made a little money, he advanced and got a good property.'"

On some parts of our shores great quantities of razor-shells are collected, sometimes by putting a little salt on the holes, which irritates the fish, and makes it rise to the surface; and again in the following manner, as described by Messrs. Forbes and Hanley:—"A long narrow wire, bent and sharpened at the end, is suddenly thrust into the hollows of the sands indicative of the presence of these animals, and, passing between the valves, the barbed portion fixes itself, on retraction, in the animal, and forces it to the surface."

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* Athenæus, vol. i. b. iii. p. 144, Bohn's Classical Library.

Poli gives an account of Solen-fishing at Naples. He tells us that the lurking-place of the Solen is betrayed by a hole in the sand, agreeing in shape with the apertures of its tubes or siphons. Where the water is shallow the fisherman sprinkles some oil on the surface, in order to see these marks more clearly. He then steadies himself by leaning on a staff with his left hand, and feels for the Solen with his naked right foot. This he catches, and holds between his great toe and the next; but although his toes are protected by linen bands, the struggles of the Solen to escape are so violent, and the edges of the shell so sharp, that often a severe wound is inflicted by it. Where the sea is five or six feet deep, the fisherman dives or swims under water with his eyes open, and after finding the holes, digs with his hands for the razor-fish.* At Tenby baskets-full are often brought to the door, and they are considered very good to eat. In Japan they are said to be so highly prized that, by the express order of the prince of that country "it is forbid to fish them until a sufficient quantity hath been provided for the Emperor's table."†

In the Bay of Concepcion are several species of shell-fish highly esteemed, and Ulloa especially mentions some *Venuses* and a number of razor-shells. The Chinese eat the razor-fishes, and they may be seen in the market at Tché-fou. The small kinds they call *Tchin-ga,* and the larger species *Chu-en-na.**

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* 'British Conchology,' vol. iii. p. 13.

† 'Glimpses of Ocean Life,' by John Harper, F.R.S.

At Naples it is considered quite a *recherché* morsel, too expensive for the common people, a dishful selling at six carlines, which is equal to two shillings of our English money.

The German name for this shell is *Scheidenmuschel* or *Messerschalenmuschel,* and the French call it *Manche de couteau* and *coutoye.* In Spain it has several names by which it is known, viz., *Muergos, Muerganos, Morgueras, Maneg de ganivet, Longeirones, Caravelas,* and at Mahon, *Manecs de quinivet.*† The Sicilian names for it are *Cannulicchiu stortu* and *Conca niura,* and in the Adriatic *Solen siliqua* is called *Capa tabacchina.*

Razor-fishes may be cooked in the following manner:—

Razor-fish Soup.—Take 2 lbs. of razor-fish, and, after they have been well washed, put them into a saucepan, and keep them on a slow fire till they open, then take out the fish from the shells. Chop up some parsley very fine, and put it, with a tablespoonful of oil or an ounce of butter, into a saucepan, and fry until it becomes brown. To this add a pint of water, or a pint and a half of milk, and, when boiling, place in your fish, with a little salt and pepper, and let it boil again for half an hour. Add toasted bread before it is served up, or boil some vermicelli with it, of course adding more water.

To cook Razor-fish.—Boil them for ten minutes or so, then take them out of their shells, and fry them with butter or lard. Add a little salt and pepper.

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* 'Notice sur la Malacologie du Littoral de l'Empire Chinois,' par Odon Desbeaux, 'Journal de Conch.' tome xi. 1863.

† M. de la P. Graells, 'Exploracion cientifica de las costas del Ferrol.'

Another way to cook Solens.—Stew them in milk till they are tender, add pepper and salt; butter is a great addition.

The razor-fish is much prized on the Scotch coast, where it is merely boiled, and eaten with salt and pepper. Poli says that it is good either raw, or fried with breadcrumbs, pepper, oil, and lemon-juice.

FAM. TELLINIDÆ.

PSAMMOBIA.

PSAMMOBIA VESPERTINA, Chemnitz. *The Setting Sun.*—Shell of an oblong oval shape, equivalve, rather flattened, opaque, colour whitish, shading to a reddish yellow at the beaks, with radiating rays of carmine and purplish pink; epidermis of an olivaceous brown; ligament external, prominent, and of a horn-colour; beaks small; teeth, two in each valve; in the left valve, one tooth bifid.

The *Tellinidæ* are but rarely used for food in this country, though several species are used for that purpose abroad. With us the *Psammobia vespertina* is stated by Dr. J. G. Jeffreys* to be eaten by the peasantry at Kenmare, and heaps of their shells may be seen round the huts.

Mr. Damon informed me that this pretty shell is dredged during the summer months in Bantry Bay, all the boats being then engaged in dredging sand and its contents, for the farmers, who use it as manure; and that out of the heaps of sand, &c., formed on the quay, the Psammobia and other shells are collected. It is only a locally abundant species; but is generally diffused. Large richly-coloured specimens are found in Birterbury Bay, Connemara; and Cornwall, Devon, Dorset, Northumberland, Pembrokeshire, Firth of Forth, and the Channel Isles, are a few of the localities given by Dr. Jeffreys.

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* 'British Conchology,' vol. ii p. 400.

Athenæus* states that Tellinidæ were very common at Canopus, and abound when the Nile begins to rise, and that the thinnest of these were the royal ones, which were digestible and light. For fish-sauces, both the Psammobia and the Donax, or Wedge-shell (which belongs to the Tellinidæ also), might be substituted instead of cockles; and, indeed, a species of the latter, which with us is very rare, viz., *Donax trunculus*, is sold in the markets at Naples, and is said by Poli to be one of the best kinds of shellfish, both for making sauce and for seasoning small rolls of bread. I have often watched the women at Viareggio fishing for the Donax and the Mactridæ. They dress themselves in their husbands' or brothers' old garments, and stand in the water to the waist. They use a kind of net made of a piece of thin light wood, oval-shaped at one end and straight at the other. This is surrounded on the upper side by a small frame-work about six to eight inches deep, except at the straight end, and covered with sail-cloth or some such material, to keep in the sand and shells. To this is attached a wooden handle about four to five feet in length. They hold the net before them in almost an upright position, the straight end towards them, and scrape the sand into it. When sufficiently full, it is looked over, and the shells picked out and thrown into a basket which they carry slung on their backs. It is apparently very hard work, and the poor women complained much of the cold, standing and working so long in the water before they could get a basketful.

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* 'Athen. Deipn.' vol. i. bk. iii. c. 40.

Dr. Jeffreys says, that according to Philippi *Donax trunculus* is still esteemed a delicacy in the south of Italy, and in Sicily it is called *Arceddu giarnusu** and *Cozzola*. The Spaniards know it by the names of *Chirlas, Tallerinas*, and *Navallas,* and in Minorca it is called *Xarletas.*

It is much eaten in Spain, and at Malaga is very common, and is cooked with rice.

On the French Coast the Donax is very abundant, and is eaten by the poor people, but always cooked. In German it is called *Stumpfmuschel.* In the islands of Guadeloupe and Martinique women also collect a species of *Donax* for food, viz., *Donax denticulata.*†

Potage aux Chobettes (name given to *Donax denticulata*), *Martinique recipe.*—Wash the shells in several waters to completely free them from the sand. Boil them ten to twelve minutes in the quantity of water required for the soup. Pass the liquid through a fine sieve, and then throw into it a piece of the best butter, with some pepper, salt, and spices; and add rice or bread. The fish can be served apart, with butter or oil, and chopped herbs; but they form so small a dish after having been boiled, that it requires a considerable quantity to satisfy the appetites of three or four persons. Sometimes the fish is pounded and made into a *purée* to mix with the soup; but it makes it more substantial and heavier of digestion.

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* 'The Mediterranean,' by Rear-Admiral W. Henry Smyth.

† 'Utilité de certains Mollusques Marins vivants sur les côtes de la Guadeloupe et de la Martinique,' par M. Beau, 'Journal de Conch.'

Spanish Method of making Fish Sauce.—Scald the fish in boiling water, sufficiently to make the shells open; but do not let them be heated more than necessary. Clean them nicely, and then mix them with a white sauce. To give a pleasant flavour, add a little lemon-juice or vinegar.

Spanish way of Cooking all kinds of Shellfish.—Chop up a good quantity of garlic, onions, parsley, and red peppers (which last must be prepared by throwing them into boiling water, and rubbing off the skins with a dry cloth); scald the fish, and pick them out of their shells, then put all together in an olla (or round earthen pot), with plenty of oil; fry them till a deep yellow. They may either be served thus, or when finished add some broth, boil it up, and serve it like a thick soup.

The genuine Cadiz lovers of shellfish, however, consider that scalding the fish spoils it; they therefore prefer the *raw* fish being put at once into the oil and vegetables, and the dish is then sent to table with the shells in it. "Psammobia vespertina" has the following names in Spain, *Navallinas* and *Guitzupetit.*

FAM. MACTRIDÆ.

MACTRA.—TROUGH-SHELL.

MACTRA SOLIDA, Linnæus. *Trough-shell.*—Shell thick, opaque, of a yellowish-white colour, nearly equal-valved, covered at the sides with a brownish or drab-coloured epidermis; nearly triangular in form, ligament short and internal; beaks small; a V-shaped cardinal tooth in one valve, with a long lateral tooth on each side, and fitting in the opposite valve into deep grooves, with tooth-like edges.

Of the Mactridæ, both *Mactra solida* and *Mactra stultorum* are sometimes eaten in England, but they are not considered *very* good, and are full of sand; though the former is eaten in Devonshire; and Mr. Dennis (as quoted by Dr. Jeffreys, in his 'British Conchology') says that the people of Newhaven, near Brighton, eat the *Mactra stultorum* also. It appears that in 1861 the steam dredging-machines were at work at the mouth of the harbour, and that they turned up *Mactra stultorum* in great numbers, so that the beach at high-water mark was covered by them.* They live buried in the sand not very far from low-water mark and at no great depth from the surface. In Holland the shells of *Mactra stultorum* are used for making roads and foot-paths; they are also burnt for lime, and the fish is eaten there. According to Poli, it is known in Italy by the name of *Mezzana,* at Naples *Gongola,* and in the Adriatic *Bibaron colorito.*† It is eaten at Viareggio, with *Mactra lactea,* and *Mactra corallina*

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* 'British Conchology,' vol. ii. p. 424.

† 'The Fisheries of the Adriatic,' by George L. Faber.

In Spain the names for it are *Chirlas, Pechinas llisas,* and *Escupiñas bestias,* and for *Mactra solida, Cascaras y chirlas.* In German, *Mactridæ* are called *Trogmuscheln.* Our rare *Mactra glauca* or *helvacea,* which is a much larger shell than either of the other kinds above-mentioned, and is at least three inches long by four broad, with longitudinal rays of a pale fawn, or a drab colour, resembling *Mactra stultorum,* is sold in the market at Brest; and at Granville is known by the name of *Schias.* It is also found at Naples, and is called *Fava,* by the Neapolitans. Poli speaks with evident satisfaction of its sweet and excellent flavour. It is eaten in Spain, where it is known by the name of *Cascaras.* It is taken in the Channel Islands, but we seldom find more than single valves upon our coast, though I have seen a perfect pair in the collection of a friend, which had been found on the Hayle Sands, Cornwall. Mr. King, of 190, Portland Road, sent me a magnificent specimen alive, some years since, which enabled me to examine the fish, and admire the beautiful colouring of its two short thick tubes, of a pale yellow shading to a rich orange; round the orifices were dark streaks of crimson, the cirri of the same colour as the tubes. The animal, however, varies much in colour; and another live specimen I received afterwards, was not so bright.

Mactra subtruncata, or the *lady-cockle,* as it is called at Belfast, is said by Mr. Alder to be gathered at Lamlash Bay, and used as food for pigs, and in some parts it is used as bait by fishermen.

One other species of *Mactra* may be mentioned as edible, as it is eaten in the Channel Islands, and also in Spain (where it is known by the following names, *Arolas, Orolas,* and *Navallon*), viz., *Lutraria elliptica,* very unlike the *Mactridæ* in appearance, and not tempting to look at. It is a broad flattish shell, about five inches long, and three in height, with a long tube, something resembling *Mya arenaria.* It lives in muddy estuaries, and at the mouths of rivers, buried to the depth of one and a half to two feet; and I have had some fine specimens from the mouth of the Towy, in Carmarthenshire.

Mr. Dennis * says the *Lutrariæ* are called *Clumps* at Herm, and I am told by Mr. Morton, that the fishermen in Jersey know them by the name of *Horse-shoes.* In Devonshire they are called *Glams.* In cooking them, they are first boiled, then taken out of their shells and fried.

Lutraria oblonga, which is a common species in some of the little muddy estuaries near Croisic and Piriac, on the coast of the Loire Inférieure, is said by M. Cailliaud to be very generally eaten, but it is a rare species with us, though it has been taken on the Devon, Cornwall, and Dorset coasts. At Mahon the name for it is *Guitzù; Quiquirigallas,* and *Cabras* at Santander, and *Ropamaceiras* at Vigo.†

Mr. J. K. Lord states that in British Columbia and Vancouver's Island the large *Lutraria Maxima,* called the *great clam,* or *otter-shell,* is one of the staple articles of winter food on which the Indian tribes who inhabit the North-West Coast of America in a great measure depend. The squaws fish for them, as it is derogatory to the dignity of a man to dig *clams*. They use a bent stick for the purpose, about four feet long, and they cook them by placing the shells on red-hot pebbles from the camp fire till the shells open. To preserve them for winter use, a long wooden needle, with an eye at the end, is threaded with cord made from native hemp, and on this the clams are strung like dried apples, and thoroughly smoked in the interior of the lodge.*

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* 'British Conchology,' vol. ii. p. 430.

† 'Moluscos Marinos de España, Portugal y las Baleares,' por J. G. Hidalgo.

Mactridæ are also found in great quantities buried in the sandbanks on the Coast of Chili.

To dress Mactridæ.—Boil them, and then eat them with pepper, salt, and vinegar.

FAM. VENERIDÆ.

TAPES.—PULLET.

TAPES PULLASTRA, Linnæus. *Pullet or Cullyock.*—Shell oblong, opaque; valves inequilateral, covered with concentric striæ, which become coarser and more wavy towards the extremities, and are crossed by longitudinal striæ; ligament external, long, horn-colour. Three teeth in each valve, erect, very narrow.

Though so common a species, the *Tapes* is not so generally eaten in England as abroad, though both this and *Tapes decussata* are eaten in Devonshire, Hampshire, and Sussex. They both inhabit muddy sand or gravel, and occasionally we find specimens of the former in holes which have been made by the *Pholas*, and deserted; and I have taken them out of holes in the rocks, both at Tenby and Eastbourne, but rarely without some depression or distortion of the valves. But the *Tapes decussata* is more local than the *Tapes pullastra.* I had never found it in profusion till the spring of 1862, when, on visiting the sands near the mouth of the Exe, I noticed that at low-water mark the ground was covered with specimens of it; and also with *Scrobicularia piperata,* which is called by the Exmouth fishermen the "mud-hen;" but this latter is not used for food in this country, as it has a hot biting taste.* It is said to be eaten at Spezia, and may be seen in the markets of Trieste and Venice; and it is used for making soup. It is known by the name of "caparozzolo."† *Tapes decussata* is a larger and more rugged shell than *Tapes pullastra,* though much resembling it, but it is not so convex, and differs from it in colour, being of a dirty white, with the bands, rays, or markings of a drab colour, sometimes of a purplish-tinge; while *Tapes pullastra* is of a more yellowish-white, with zigzag markings of a rufous-brown, sometimes extending all over the shell, and at others only towards the extremities.

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* 'The Naturalist in British Columbia,' by John Keast Lord.

In the Northern Isles, the pullet or cullyock, is only used for bait.

Tapes decussata is called in some parts of England "purr," and in Hampshire "butter-fish." At Stubbington, near Tichfield, quantities are collected, and sold in the neighbourhood, at 5*d.* per quart, where they are considered richer and better than cockles. They are found at low tide not far from high-water mark, and their locality is easily detected by *two* holes in the sand or gravel (unlike the cockle, which makes but one), about an inch or so apart. They are easily dug up by means of an old knife. On warm, still days they appear to rise more readily to the surface; but if cold or windy they burrow about two to three inches deep in the gravelly sand. Butter-fish are considered very wholesome and I was assured by the cockle gatherers that they might be eaten with impunity at all times of the year, and never disagreed with people as the mussels and cockles occasionally do. At Falmouth, also, they are considered far richer and sweeter than cockles, and are sold in the market at 3*d.* per hundred.

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* 'British Conchology,' vol. ii. p. 446.

† 'The Fisheries of the Adriatic,' by G. L. Faber.

M. Gay says, that at Toulon it is known by the name of *Clouvisso,* and is a favourite dish in Continental seaports.* *Clovisse* is another name for it, and at Bordeaux it sells in the market from twenty to thirty centimes per hundred, and both it and *Tapes pullastra* are called *Palourde* by the French, and also *le Lunot.* At Puerto de Santa Maria, in Spain, it is very highly prized, and the Spaniards say "es buena" in speaking of it; and at Vigo thousands are gathered at every tide. The following names are given in Spanish to all kinds of Tapes, viz. *Almeixas, Almeija, Petchinas, Almejas,* and *Escupiña lliza.* At Naples it is called *Vongola verace.*

Other species of *Tapes* are eaten abroad, besides those already mentioned; and we may add another to our edible mollusks, viz. *Tapes virginea,* which is distributed all round our coasts. It varies very much in colour, and you may gather a dozen or more specimens without finding two that resemble each other. The brightest I ever found was near Dawlish; it was mauve colour, with white streaks. The largest are dredged at Tenby.

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* 'British Conchology,' vol. ii. p. 361.

In Ireland, at Youghal, in Birterbury Bay, in Connemara, and in Bantry Bay, *Tapes aurea* is said to be eaten, but it is not a common species, though locally abundant; and in the spring numbers are found in the Scilly Isles. At Falmouth, it is brought to market with *Tapes decussata* from Helford, and both kinds are called "hens."

The Spaniards prize the *Tapes* highly, as I previously observed. At Cadiz, shellfish are considered good if people drink too much wine, and consequently they are often introduced at *festas;* and no food is considered by the Spaniards so nourishing as shellfish for those who work hard.

It is a rule at Spanish tables to hand round white wine with shellfish, though with other things they use any wine indiscriminately, and the wisdom of this custom is proved by experience. Indeed serious illnesses are often caused by taking port wine with oysters, lobsters, &c.; the astringent qualities of port, having the effect of hardening the shellfish, and sometimes producing violent indigestion. In Paris not so very long ago, we might have read amongst the many varied signs, the following, "*le vin blanc, bon pour les huîtres.*" The following recipes for cooking the *Tapes* are from Cadiz.

Tapes Soup—Sopa de Almejas.—Wash the shells and put them into a saucepan with a little water, then put them on the fire for a few minutes to open them. Pick the fish out and put them into a clean saucepan, with an onion chopped very small, salt, pepper, and butter.

Fry till they are of a good brown colour, then add water or broth, and boil till a strong soup is made. If preferred, fresh fish may be added when serving it.

Tapes decussata.—Almejas blancas.—Wash them well, dry them, and place them in a saucepan or casserole in the oven, which must not be hot enough to burn them; when open, take them out of their shells, and place them on a very slow fire, with butter, parsley, and a little chopped onion; when tender, add a little flour, pepper and half a glass of white wine. As soon as they are ready to serve, add the yolk of an egg, well beaten, and the juice of a lemon.

Tapes, another way—Almejas cocidas.—Wash and open them as above, add butter and some chopped parsley, serve in their own liquor, with the juice of a lemon squeezed into it.

Tapes Ragoût—Almejas guisadas.—After having well washed the shells, put them into an earthen vessel, with a piece of butter; when open, pass the liquor that runs from them through a sieve, and take the fish out of the shells. Place the fish in the liquor, and add more butter, mixed with chopped parsley, pepper, and salt; moisten them with broth, white wine, or water; let them boil some minutes, and, when ready to serve, add an egg well beaten, some lemon-juice or vinegar.

Tapes au naturel—Almejas al naturel—Prepare them as mentioned in the recipe above, then put the fish in a saucepan with their own liquor; add whole peppercorns and cook them over a very slow fire, shaking them about from time to time; then add lemon-juice and shake them again over the fire. Salt to your taste, and serve without any other sauce.

Tapes Sauce—Salsa de Almejas.—Scald the fish in boiling water to open their shells, but do not let them be heated more than necessary, clean them nicely, and mix them with a white sauce, acidulated with lemon-juice or vinegar; use with boiled or fried fish.

Potage of Oysters and Tapes,—Menestra de Ostras y Almejas.—Wash the shells and put them in hot water to open them. Take out the fish, and put them in a saucepan on the fire with a little water; chop two onions small and fry them in butter; while stirring them about dredge in slowly a little flour; add the oysters and Tapes, and the water in which they were boiled, stir the whole for a few minutes over the fire, then add the yolk of an egg well beaten up. Fry slices of bread in butter, and place them at the bottom of the dish, pouring the potage over them; then serve.

Hampshire Method of Cooking Tapes.—Wash the shells, then boil them for a few minutes, till the water is just on the eve of boiling over. If boiled with cockles, the "butterfish" must be placed in the saucepan a few seconds *before* the cockles. They are also very good eaten raw, like oysters.

VENUS VERRUCOSA Linnæus. *Warty Venus.*—Shell opaque, very solid, inequilateral, covered with concentric ridges which bend backwards, and towards the sides or ends become coarser, forming knots or tubercles. These ridges are divided by fine ribs or furrows, which radiate from the beaks, giving them a scalloped appearance. Umbones prominent, the beaks small and sharp, the lunule distinct and heart-shaped. Ligament rather long and narrow. Three teeth in each valve; the margins crenulated inside. Colour, pale yellowish-brown.

This coarse, rough-looking shell is found on many parts of the coast of the English Channel, also in the Channel Islands, and in Ireland.

Mr. Hanley* states, that at Herm, near Guernsey, it is collected as an article of food from the small pools between the rocks at low water; and Dr. Jeffreys says that it is habitually eaten in County Clare, and that Weinkauff mentions its being sold in the market at Algiers.

It is a common species on the south coast of Ireland, and Mr. Damon, of Weymouth, on visiting Henmare, found that owing to the great consumption of *Venus verrucosa* for food, the species was nearly exhausted. It is dug out of a sandbank at low spring tides, at Bantry. M. Charles Bretagne, Member of the Société Impériale d'Acclimatation, wished to try and propagate it on the coasts of France, from Toulon to Menton, and the Duc de Monaco conceded the right to establish banks for the rearing of oysters and *la Praire*, as this Venus is called in France.† The stock of the latter would have to be brought from Mahon, as it is not found in any quantity on the coast of Provence. Dr. Paul Fischer observes that it ought to thrive well at Arcachon if cultivated, as it is indigenous there.

It has several names by which it is known in Spain; viz., *Maclo cuadrado, Carneros, Gurriaños y Verigüetos, Gredas, Escupiñas grabadas*, and at Naples, *Taratufolo* and *Camadiä*, and in Sicily, *Vongulo*.

The beautiful *Venus Chione*, or *Cytherea Chione*, may also be included in our list of "edible mollusca," though it is not sufficiently abundant to form any more than a rare and dainty dish with us; while in the Mediterranean, it is a common species; and according to Mr. Faber,* it is also abundant in the lagoons of Venice, and on the sand-banks of Grado on the Austrio-Italian coast, and the shells are exported for miniature painting.

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* Forbes and Hanley, 'British Mollusca,' vol. i. p. 404.

† 'Notes sur la Praire,' par M. Charles Bretagne, 'Journal de Conchyliologie,' tome xii. 1864.

It is however, found at Hayle, Cornwall, and may be gathered at the lowest spring tides. They burrow in the sand, and it requires some skill and quickness to catch them, as they retire so rapidly. The fishermen called them "cocks" and told me they usually cooked them by boiling, but that they did not often eat them. I have taken them near the mouth of the river Helford, where they appear to be tolerably abundant; and in that neighbourhood the local name given to this species is the *Cram.*

I was so fortunate as to procure a dozen beautiful specimens from Plymouth, besides those from the Helford river; the largest measuring 2½ inches in length and 3½ in breadth. The colour is a pinkish-brown, with rays of a darker shade; the epidermis is of a pale horn-colour, and transparent, showing the rays of the shell through, and is very glossy. The shell itself is solid and opaque. Specimens sent to me from the Mediterranean are the same as those found on our coasts, both as to size and colouring; but this is not the case with some of our other bivalves,—the *Isocardia Cor,* for instance, attaining a larger size with us, than it does in the south of Europe.

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* 'The Fisheries of the Adriatic,' by George L. Faber.

Messrs. Forbes and Hanley give the following localities for *Cytherea chione,* viz., Plymouth and Teignmouth, and Dr. Jeffreys mentions Mount's Bay, and other parts of the coast of Cornwall.

The Neapolitans call it *Fasolara,* and the Tarentines, *Camadia di luna,* while in Spain it is called *Saveriñas, Conchas,* and *Mariposas.**

Poli, in his magnificent work, the 'Testacea utriusque Siciliæ' (to which more modern writers are so deeply indebted for their anatomical description of molluscous animals), mentioning this fish, under the names of *Venus chione* and *Callista coccinea,* says it is most excellent, and that though cooked in various ways (common to different shellfish), it is most delicious when simply cooked in oil, or butter, with breadcrumbs, chopped parsley, and pepper and salt.

To cook Venus verrucosa.—Boil them, after first washing the shells well to free them from sand and mud, then fry them for a few minutes in a frying-pan, with a little butter or lard, adding pepper and salt according to taste. Fry some parsley quite crisp, and serve round the dish.

Venus Gallina may be mentioned as an edible species also, and is very common everywhere on our coasts, where there is sand, but although it is not used as food with us, it is much eaten in some parts of Italy by the poorer classes; and the name for it at Venice is *Bibarazza.* In Spain, too, it is eaten, and at Mahon is called *Escupiña Maltesa.*

Before leaving the *Venus* tribe of shells, I must call attention to an American species, which is now becoming an object of interest to the shellfish growers in this country, viz., *Venus mercenaria.* The experiment to acclimatize it on the French coast has already been tried by M. de Broca, M. Coste, and the Count de Férussac. Breeding-beds were prepared on the coast at Arcachon and Saint-Vaast-la-Hogue, and in 1861 the steward of the 'Arago' steamer brought over about 200 *hard clams,* and also some American oysters, which were deposited in these beds under the superintendence of M. Coste.* In 1863 another supply of live clams was brought over, but Dr. Paul Fischer stated, in 1865, that though the mollusks seemed perfectly healthy, they did not appear to have spawned, as no young specimens could be found. Mr. F. G. Moore, Curator of the Liverpool Museum, describes (in a paper given to Professor Brown Goode, and quoted at one of the Conferences held at the International Fisheries Exhibition,) the successful introduction of the *hard clam,* or *quahog,* into the waters of St. George's Channel.

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* 'Moluscos Marinos de España, Portugal y las Baleares,' por J. G. Hidalgo.

Venus mercenaria is very largely consumed in America. The New York supply comes chiefly from Long Island. The prices for them are as follows: 20 cents per dozen, and 75 cents to 1 dollar per 100. Like oysters, they bear long journeys well, and can be preserved alive for some time by being kept wet and cool. The shell is very thick, covered with a drab-coloured epidermis, and much resembles, in form, our *Cyprina islandica,* but it is more triangular. Inside, the valves at one end are of a rich purple colour, the portion used for making the 'Wampum, as we shall read further on.

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* 'Utilization of Minute Life,' by Dr. T. L. Phipson.

The following recipes for cooking clams, are from America, and will no doubt be acceptable; especially if the experiment of acclimatizing these shellfish on our shores should prove successful.

Clam Soup.—Take 50 clams, 1 quart of milk, 1 pint of water, 2 tablespoonfuls of butter. Drain off the liquor from the clams, and put it over the fire with a dozen whole peppers, a few bits of cayenne pods, half a dozen blades of mace, and salt to taste. Let it boil for ten minutes, then put in the clams and boil half an hour quite fast, keeping the pot closely covered. If you dislike to see the whole spices in the tureen, strain them out before the clams are added. At the end of the half-hour, add the milk, whichh as been heated to scalding, not boiling, in another vessel. Boil up again, taking care the soup does not burn, and put in the butter. Then serve without delay. If you desire a thicker soup stir a heaping tablespoonful of rice-flour into a little cold milk, and put in with the quart of hot.*

Hard Clam Soup.—Take 50 large or 100 small sand clams, and their liquor, from the shells; strain the liquor; add to it a quart of milk and water each; if the clams are large, cut each in two and put them into it; set them over a moderate fire until the clams are tender (about one hour); skim it clear; put to it half a pound of butter crackers rolled fine; cover the pot for ten minutes, then add a quarter of a pound of sweet butter, and serve hot.†

To boil Hard Clams.—Wash the shells until they are perfectly clean, then put them into a kettle, with the edges downwards; add a pint of water, cover the pot and set it over a brisk fire; when the shells open wide they are cooked. Half an hour is generally enough for them; if a strong taste to the juice is not liked, put more than a pint of water to them When done, take the clams from the shells and place them in a deep dish; add to them some of the juice, a good bit of butter, and some pepper; or toast some thin slices of bread, butter them and cut them small, and put them in the dish, before putting in the clams and juice.*

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* 'Common Sense in the Household,' by Marion Harland.

† Mrs. Crowen's 'American Lady's Cookery Book.'

Fried Hard-Shell Clams.—Get the large sand clams, wash them in their own liquor; dip them in wheat flour or rolled crackers as may be preferred, and fry in hot lard or beef dripping, without salt; or dip each one in batter.†

Omlet of Hard-Shell Clams.—Make a batter of two well-beaten eggs, to a pint of milk and a gill of the liquor from the clams, with a pint bowl of wheat flour; beat it until it is smooth and perfectly free from lumps; then stir into it fifty small sand clams, or twenty-five large ones, chopped small; have a frying-pan, put into it a teacup of lard or beef fat; make it boiling hot, put in the batter half an inch deep, and set the pan over a gentle heat until one side is a fine brown; pass a knife-blade round the edges and under it occasionally to loosen it from the pan; then turn the other side. When both are done, turn it into a dish. This quantity of batter will make several omlets.‡

Clam Pot Pie.—Put two pounds of wheat flour into a bowl; make a hollow in the centre of it; put into it a teaspoonful of salt, and a pint of buttermilk or sour milk; measure a small teaspoonful of dry saleratus (volatile salts), mix it with a little hot water; when all is dissolved, and a little cooled, add to it the sour milk or buttermilk, then proceed to make it into a soft dough with as much cold water as may be necessary; dip your hands in dry flour to prevent the dough from sticking to them. Rub over the sides of an iron dinner-pot with a bit of butter, and line the sides only with the paste made in the hands, not more than half an inch thick, press it closely against the pot, then put in fifty large clams, a quarter of a pound of sweet butter cut small, a small teaspoonful of ground pepper strewed over, and half a nutmeg, grated, if liked; dredge wheat flour over, until it looks white; put of clam juice and water sufficient to nearly reach the top of the paste; lay skewers across, roll out a crust for the top, and whatever paste remains. cut into small squares, and drop in before putting on the crust; cut a slit in the centre, cover the pot close and set it over a gentle fire for one hour; then take it up and serve as soon as done. The crust becomes heavy by standing. This is a dish much liked by those who are fond of clams. The paste directed in this recipe is delicate and far more healthful than any other.*

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* Mrs. Crowen.

† Ibid.

‡ Ibid.

Pickled Clams.—Boil them from the shells, and take them out with a skimmer and put them into a basin; take of their own liquor half enough to cover over them, and the same quantity of strong vinegar. Whole pepper, alspice and mace, each a teaspoonful; make this hot and then pour it over the clams. After twenty-four hours they are fit for eating, and will keep good for a long time.

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* Mrs. Crowen.

Clam Fritters.—One and a half pints of milk; one and a quarter pounds of flour; four eggs, whites and yolks beaten separately; whites stirred in lightly at the last; the clams must be chopped small; mix well, and drop with a spoon into hot lard, and fry brown.*

Scalloped Clams.—Chop the clams fine, and season with pepper and salt. Cayenne pepper is thought to give a finer flavour than black or white, but to some palates it is insufferable. Mix in another dish, some powdered cracker, moistened first with warm milk, then with the clam liquor, a beaten egg or two, and some melted butter. Stir in with this the chopped clams. Wash as many clam-shells as the mixture will fill, wipe and butter them; fill, heaping up and smoothing over with a silver knife or teaspoon, range in rows in your baking-pan, and cook until nicely browned. Or, if you do not care to be troubled with the shells, bake in patty-pans, sending to table hot in the tins, as you would in the scallop-shells.†

Clam Chowder.—Fry five or six slices of fat pork crisp, and chop to pieces. Sprinkle some of these in the bottom of a pot; lay upon them a stratum of clams; sprinkle with cayenne or black pepper and salt, and scatter bits of butter profusely over all; next, have a layer of chopped onions, then one of small crackers, split and moistened with warm milk. On these pour a little of the fat left in the pan after the pork is fried, and then comes a new round of pork, clams, onions, &c. Proceed in this order until the pot is nearly full, then cover with water, and stew slowly

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* 'Every Day's Need.'

† 'Common Sense in the Household,' by Marion Harland.

—the pot closely covered—for three-quarters of an hour. Drain off all the liquor that will flow freely, and, when you have turned the chowder into the tureen, return the gravy to the pot. Thicken with flour, or, better still, pounded crackers; add a glass of wine, some catsup and spiced sauce; boil up, and pour over the contents of the tureen. Send around walnut or butternut pickles.*

At Hong Kong there is a large consumption of *Cytherea petechialis;* and *Cytherea arabica* is said by Dr. Léon Vaillant to be eaten by the Arabs, and it is found in the Bay of Suez.†

Fam. CYPRINIDÆ.

ISOCARDIA.—OXHORN-COCKLE.

Isocardia Cor, Linnæus. *Heart-Shell or Oxhorn-Cockle.*—Shell very strong, nearly spherical, heart-shaped, concentrically striated, equivalve, smooth, with a dark reddish-brown epidermis; beaks very prominent and curled; two primary teeth in the right valve, lying parallel to each other; in the left valve the outer tooth is indented and is large, the other, thin and laminar. The lateral tooth strong and elongated, situated under the ligament, which is external.

This magnificent mollusk is very partially distributed, though plentiful in some places. Specimens have been sent to me from Dublin Bay, where, I grieve to say, they are getting very scarce, and also from Brixham, where they are highly prized by the fishermen. They do not, however, often bring them on shore, though they bring them up in the dredges, unless they wish to make a present of a dish to some friend, or know where they can dispose of them. They call them "Torbay-noses," and they are also known by the names of "Oxhorn-cockles," and "Heart-shells;" in France, *Cœur de bœuf;* in Holland, *Zots-kappen,* or fool's cap; at Naples, *Cocciola zigga;* and at Venice, *Bibaronde mare,* and *Chama a cuore.* Dr. J. G. Jeffreys, quoting an interesting account of *Isocardia cor,* by the Rev. James Bulwer (who kept a specimen in a vessel of sea-water, and was therefore able to study the habits of the animal), given in the 'Zoological Journal,' states, "that the animal appears insensible both to sound and light, as the presence or absence of either did not interrupt its movements; but its sense of feeling appeared to be very delicate; minute substances being dropped into the orifice of the mantle instantly excited the animal, and a column of water strongly directed, expelled them from the shell. With so much strength was the water in some instances ejected that it rose above the surface of three inches of superincumbent fluid . . . . Locomotion very confined; it is capable, with the assistance of its foot, which it uses in the same manner (but in a much more limited degree) as the *Cardiacea,* of fixing itself firmly in the sand, generally choosing to have the umbones covered by it, and the orifices of the tubes of the mantle nearly perpendicular.* Resting in this position on the margin of a sand-bank of which the surrounding soil is mud, at too great a depth to be disturbed by storms, the *Isocardia* of our Irish Sea patiently collects its food from the surrounding element, assisted in its choice by the current it is capable of creating by the alternate opening and closing of its valves."

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* 'Common Sense in the Household,' by Marion Harland.

† 'Recherches sur la Faune Malacologique de la baie de Suez.' 'Journal de Conch.' tome xiii. 1865.

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* 'British Conchology,' vol. ii. pp. 300, 301.

The Mediterranean species of this bivalve are smaller than those found on our coasts, and there are no less than five or six kinds known in the European and Indian seas.*

Epimarchus, in his play of the 'Marriage of Hebe,' mentions shellfish of all kinds, and says,—

> "And bring too the black
> Cockle, which keeps the cockle-hunter on the stretch."†

This may possibly refer to the oxhorn-cockle.

The wife of a coastguardsman, who had lived many years at Brixham, and had often luxuriated in a dish of these delicious shellfish, gave me the following recipe for cooking them :—

To dress Torbay noses.—Wash the shells well, then boil them till they open—about ten minutes or so; take the fish out of the shells and put them into a frying-pan with some butter, a little salt and pepper, and fry till they are of a good brown colour; then serve.

FAM. CARDIADÆ.

CARDIUM.—COCKLE.

CARDIUM EDULE, Linnæus. *Common Cockle.*—Shell equivalve, subcordate, with twenty-four or more ribs radiating from the beaks, which are bent inwards; umbones prominent; the internal margins of the valves fluted or indented. Ligament external, strong, and of a dark horn-colour. Four teeth in each valve; the two primary teeth close together, the lateral teeth remote. Colour yellowish-white.

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* 'Manuel de Conchyliologie,' par Dr. T. C. Chenu.

† Athenæus, 'Deip.' Bohn's Class. Lib. iii. p. 142.

The common Cockle (the *Ruocane* or *Bruvane* of the Irish; *la Bucarde sourdon, Rigardot,* or *Coque* of the French, the *Berdigones, Berberichos, Croques, Carneiros, Romeas,* and *Escupiñas de gallet,* of the Spaniards) is found all round our coasts, burying itself in sand, or sandy mud, in the neighbourhood of estuaries; and at low tides numbers of people may be seen busily engaged filling their baskets, as it is everywhere much sought after for food; and during times of scarcity in some of the northern islands of Scotland, the inhabitants might have perished with hunger, if it had not been for this useful little shellfish. The quantity of shellfish, particularly of cockles, on the shores of most parts of the Long Island (Western Isles) is almost inconceivable. On the sands of Barra alone, scores of horse-loads may be taken at a single tide. Cockles are considered by the people very nutritious, especially when boiled with milk.* It is astonishing how quickly an expert cockle-gatherer will fill his basket; and sometimes they make use of a piece of bent iron, or half an old hoop, to scrape the shells out of the sands. At Starcross, they have small "cockle-gardens," where the shellfish are kept, and the flavour of these cockles is considered superior to those which are found elsewhere. The costume of the women who gather them is anything but becoming—large fishermen's boots, their dresses so arranged as to resemble very large knickerbockers, and an old hat or handkerchief on their heads, with their baskets on their backs.

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* 'Visits to the Seacoasts: Shipwrecked Mariners,' vol. xii. p. 32, 1865.

I am told that some of the Gower people, on the *north* side of the seigniory of Gower (a Flemish colony in Glamorganshire), live nine months in the year on cockles. They also carry large quantities to Swansea market, whence they are sent to London, and indeed by rail to all parts of England.

At Penclawdd tons of cockles are gathered to send away, and women do the work. Mr. Wirt Sikes tells us, that the sand-banks are lined with the "cockle-wives" scraping for cockles, the scraper being made from an old reaping-hook. The tide recedes for a mile and exposes acres upon acres of sand in which the cockles are embedded. Some of the women have small carts or donkies with panniers, but the majority carry their baskets on their heads. They earn in good times, three or four shillings a day. The cockle is usually boiled out of its shell, and sold by measure, by the itinerant vendors. The cockles are generally gathered on Friday for the Swansea market on Saturday.*

Mr. Baines, in his 'Explorations in South-West Africa,' tells us that cockle-shells are greatly prized by the Damaras, and if they are rich enough to afford it, one is worn in the hair over the centre of the forehead; and he adds, that if some friend at home would invest three-halfpence in these favourite mollusks, and send him the shells after his meal, he might make his fortune. In the British Museum a fishing-net is exhibited, from the Friendly Islands, with cockle-shells fastened on to it to sink it, instead of leads.

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* 'Old South Wales,' by Wirt Sikes, p. 243.

Cockle-shells are used as cultch for the oyster spat to adhere to; they are thrown on to the breeding beds; and they sow them during the time the oyster spat are floating about in the sea. . . . . Mr. Frank Buckland, in his examination before the Select Committee on Oyster Fisheries, 1876, adds that "Spat are especially fond of cockles, and that the great advantage of cockle-shells cultch is, that the oysters will grow up in handsome bunches, they can then be broken off, and they will grow into proper size and shape, and become handsome and fit for market."

Major Hayes, Inspector of Irish Fisheries, in his report on the principal Oyster Fisheries of France, made in 1878, noticed at Arcachon, a new form of collector for spat, viz., cockle-shells strung closely together upon wire, a hole being made in the shell near the hinge; the wire is run through, and when strung they are placed at the proper time in situations favourable for catching spat. They are kept about three inches above the mud by means of pegs placed at intervals, to which the wire is attached, and they appeared to succeed admirably, as when a long string, or *chaplet*, as it is called at Arcachon, was lifted, every shell was covered with young oysters.

Cockle-shells are also used for making garden walks, and good lime is made from them when they are calcined.

Pepys, in his 'Diary,' mentions the care with which the ground in the Mall was kept for the game of "Pall mall." In 1663, May 15th, he says "I walked in the Park (St. James's) discoursing with the keeper of the Pall mall, who was sweeping it, and who told me, that the earth is mixed that do floor the mall, and that over all there is cockle-shells powdered, and spread, to keep it fast, which however, in dry weather turns to dust and deads the ball. The person who had the care of the ground was called the "King's Cockle Strewer." *

In the heraldry of Prussia, the cockle-shell is used. "Barry of four, argent and azure, semée of cockle-shells counterchanged, are borne by the Silesian family of Von Strachwitz, which has for crest, two wings also charged with cockles."†

We also find this shell figured on coins. A specimen in the British Museum of the *sextans*, the sixth part of the *as*, or piece of two ounces, has on one side a caduceus, a strigil, and two balls, and on the other, a cockle-shell.

Ossian, in his poem the 'War of Inis-thona,' tells us that the king of that island gave a feast to Oscar, which lasted three days, and that they "rejoiced in the shell,"—meaning that they feasted sumptuously and drank freely. Again, we meet with the "chief of shells," and the "halls of shells." Macpherson calls the cockle the "heroes' cup of festivity," being known by the name of *Sliga-crechin*,‡ or the drinking-shell; and it is also stated that this shell is used in the Hebrides for skimming milk.§ This seems, however, hardly possible, for the "heroes" would probably not be content with so small a cup as the little common cockle. It must have been some larger shell, and formerly the word "cockle" was applied to *any* shell: besides which, the common cockle could not, from its shape, be used for skimming milk, and from its size, it would be of little use for that purpose. Moreover, we *know* that the so-called cockle used in the Hebrides for that purpose is a *Mya*, there called the cockle.

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* 'London: its Celebrated Characters and Remarkable Places,' vol. i. p. 138.

† Sibmacher's 'Wapenbuch,' Heraldry of Fish, p. 226.

‡ In Manx, *Shligh*, is the name for the cockle.

§ 'A Book for the Seaside.'

The Irish, the South Welsh, and probably others, call the whelk (*Buccinum undatum*) the *Goggle*, and know it by no other name. It is evidently the same word, and is more correctly applied, as we shall presently see.

"Cockle" was the common name in olden times for the escallop of pilgrims,—"he wore the cockle in his hat," &c.; and it is still often used in heraldic language. Lydgate, when he says—

> "And as the *cockille*, with heavenly dewe
> So clene
> Of kynde, engendreth white perlis rounde."

means evidently the *oyster*, alluding to the old fable of pearls being formed by the oyster's rising to the surface of the water at the full moon, and opening its shell to receive the falling dew-drops, which thus hardened into pearls,—an idea which is quaintly detailed by Robinson, in his 'Essay towards a Natural History of Westmoreland and Cumberland' (1709), who, in speaking of the pearls procured from the rivers Irt and End, says "Those large shellfish which we call horse-mussels, which, gaping eagerly and sucking in their dewy streams, conceive and bring forth great plenty of them," (the pearls), "which the neighbourhood gather up at low-water, and sell at all prices." The natives of India have a similar belief with regard to the origin of pearls, viz. that they are congealed dewdrops, which Buddha in certain months showers upon the earth, when they are caught up by the oysters whilst floating on the waters to breathe.*

The Asiatics have also an idea that the pearls found in certain shellfish are produced from drops of rain-water, which they imbibe:—

> "Who spread out the earth on the face of the water,
> And form'd precious pearls from the tears of the clouds!"†

The natives of Java have a still stranger belief that the *pearls themselves* breed and increase if placed in cotton, and they sell what they term "breeding pearls" for this purpose, affecting to distinguish the male from the female. Those pearls which are clustered together in the form of a blackberry, are said by them to be thus produced. Nor is this belief peculiar to Java, as a Spanish lady informed a friend of mine, that, if seed-pearls were shut up in cotton-wool, they would increase *either in size or in number?* The experience of our jewellers is, that the effect of cotton-wool on pearls is to injure their colour, and make them yellow. But it is said to preserve them, if they are kept in a box with a piece of the root of ash, or in dry magnesia. The tears of Chinese mermaids are said to be pearls.‡

Shakespeare says,—

> "Love's feeling is more soft and sensitive
> Than are the horns of *cockled* snails."

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* 'Household Words,' vol. iii. p. 80. "My Pearl-fishing Expedition."

† Forbes, 'Oriental Memoirs,' vol. iii. p. 180.

‡ 'Strange Notes from a Chinese Studio.'

Here *cockled* means either *shelled* or *whorled.*

The Greek *κοχλίας, κόχλος*, means a snail, or a shell with a spiral whorl (hence the name of "goggle" for the *Buccinum*); but it is also used sometimes for a bivalve shell or "cockle." *Κοχλιάριον* is a spoon.

Camden, in his 'Britannia' (p. 962), in speaking of Ireland, and of the commodities of the British Ocean, says, "There are *cockles,* also in great numbers, with which they dye a scarlet colour so strong and fair, that neither the heat of the sun nor the violence of the rain will change it, and the older it is, the better it looks." Of course, the purple-fish (*Purpura lapillus*) is here meant.

Locke also speaks of the "oyster or cockle."

The Latin *cochlea* is properly a snail; but *cochlear* (*cochleare,* or *cochlearium*), "a spoon," or "spoonful," seems to be derived from the form of a bivalve shell, rather than of a snail; it was also a measure for liquids, and in medicine it still signifies a spoonful, hence the Italian *cucchiajo,* French *cuiller.* *Cochlearium* was also used by the Romans for *any* small shell, as in mediæval times. Some authors, indeed, say the spoon was called *cochlear,* not from its shape, but from the pointed end or handle being used for taking the snails (*cochleæ*) out of their shells and eating them, and the broader part for eating eggs, &c. This may be doubted, but a spoon could scarcely resemble a snail-shell, and Martial says (xiv. 121), "Sum cochleis habilis, nec sum minus utilis ovis."

At the meeting of the Ethnological Society, March 4th, 1862, Mr. G. W. Earl gave an interesting description of the singular Malayan shell-mounds, which were formed entirely of *cockle-shells.* He described them as existing in the province of Wellesley, near the Mudah river; that they were about five to six miles from the sea, situated on sandy ridges that appeared formerly to bound the narrow estuaries communicating with the ocean. He adds that these mounds of cockle-shells are about eighteen to twenty feet high, and that the Chinese immigrants have largely employed them as a source of lime. These mounds are supposed to be of great antiquity, from the fact of the shells being partly cemented together by crystallized carbonate of lime, the result of the very slow action of atmospheric and aqueous influences. At the bottom of one mound which contained 20,000 tons of shells, a human pelvis was found; and other remains and stone-implements have been obtained from the Chinese lime-burners. Mr. Earl attributes the formation of these mounds to the Semangs, a diminutive negro race, now sparingly scattered over the surrounding country, but who were evidently very numerous and widely spread in former times.*

In Grey's 'Australia,' vol. i., mention is made of a hill of broken shells, which it must have taken centuries to form, situated between Port George the Fourth, and Hanover Bay. "It covered nearly half an acre of ground, and in some places was ten feet high; it was situated over a bed of *cockles*, and was evidently formed from the remains of native feasts, as their fire-places and the last small heaps of shells were visible on the summit of the hill." A similar mound noticed near Port Essington, of shells rudely heaped together, is supposed to be a burying-place of the Indians.

At Wigwam Cove, Tierra del Fuego, piles of old shells, often amounting to some tons in weight, were noticed by Dr. Darwin, which had at different periods formed the chief food of the inhabitants.*

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* 'Intellectual Observer,' vol. i. p. 239.

These remind us of the so-called kjökkenmöddings (kitchen heaps) of Denmark, or shell-mounds, to which the attention of archæologists has been recently attracted in Northern Europe, and which consist of thousands of shells of the oyster, cockle, and other edible mollusks, with implements of stone, such as flint knives, hatchets, &c., and implements of bone, wood, and horn, with fragments of coarse pottery mixed with charcoal and cinders.†

Quite recently, one of these kjökkenmöddings has been discovered at Newhaven, in Sussex, and among the objects found were limpet and other shells, with bones of animals.‡

In 1863, Sir John Lubbock published, in the 'Natural History Review,' an account he had received from the Rev. G. Gordon, of Scotch kjökkenmöddings on the Elginshire coast, resembling those in Denmark. Mr. Gordon says, "By far the most striking, if not the most ancient, of the kjökkenmöddings we have in our vicinity, is that one which lies within a small wood on the old margin of the Loch of Spynie, and on a sort of promontory formed of those raised shingle beaches so well developed in that quarter. This mound, or rather two mounds (for there is an intervening portion of the ground which has no shells), must have been of considerable extent. A rough measurement gives eighty by thirty yards for the larger, and twenty-six by thirty for the smaller portion. The most abundant shell is the periwinkle; next in order as to frequency is the oyster, which, as well as those who had it as a large item in their bill of fare, has passed away from our coasts. Save in some of the nooks of our Firth, as at Cromarty, Altirtie, and Avoch, we know not where a small dish of them could be procured. As third in order, in this mound, is the mussel, and then the cockle."

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* Darwin, 'Voyage of Adventure and Beagle,' vol. iii. p. 234.

† Sir Charles Lyell's 'Antiquity of Man.'

‡ 'Intellectual Observer,' vol. vii. p. 233.

Mr. Gordon further adds that similar refuse-heaps are found all round the shores of the Moray Firth, and that the farmers gradually cart them away to serve as manure or top dressings.

These shell-mounds, Sir John Lubbock states, are actually called "shelly-meddings" by the fishermen of that district.

Sir Gardner Wilkinson found large masses of cockle-shells embedded in the ditches of an old British camp or earthwork, called "Nottle Tor," in the seigniory of Gower, in Glamorganshire. This camp stands on a high rock above the sea, and at some distance from any dwelling-house; the shells are therefore from fish eaten by the ancient Britons.

Cockle, mussel, and oyster shells, are often discovered in great quantities on the sites of Roman stations.

In the reign of King John we read of vessels called "cogs." They were supposed to be short and of great breadth, like a *cockle-shell*, whence they are said to have derived their name. The name "cog" was variously written, viz., kogge, gogga, kogh, cocka, coqua, &c. "Cogs" were used for the conveyance of passengers from England to France, and as coasting vessels.*

To make Cockle Soup.—Boil your cockles, pick them out of the shells, then wash them and put them into a saucepan; take two or three pounds of fresh fish, and a cullis, as for crayfish soup, and strain it through a sieve, to the thickness of a cream; put a little of it to your cockles; cut off the top of a French roll, take out the crumb, and fry it in a little butter, place it in the middle of a soup-dish, your bread being soaked with some of your cullis; garnish with a rim of paste, lay the cockle-shells round the outside; thicken up the cockles with the yolk of an egg as you do a fricassee, and put one or two into each shell round the soup; also fill up the loaf in the middle; the cullis being boiling hot, squeeze into it, and on the cockles, a little lemon, and serve it up.†

Francatelli's Cockle Soup.—Scald, drain, beard, and wash carefully, four dozen of cockles, reserving their liquor in a pan. Put four ounces of butter into a stewpan to barely dissolve over the fire; mix in four ounces of flour, moisten with a pint and a half of good white stock or milk; season with nutmeg, a pinch of cayenne, and a teaspoonful of anchovy; add half a pint of cream; stir over the fire for a quarter of an hour's gentle boiling, and then, having cut the cockles in halves, pour the hot soup over them in the tureen.‡

Cockle Sauce.—Clean cockles thoroughly from all particles of sand, put them into a saucepan with the liquor and a little water, thicken with flour and butter, adding pepper, salt, a little mace, and some cream.

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* 'Hist. of the Royal Navy,' by Sir N. H. Nicolas, vol. i., note, p. 128.

† 'Cooks' and Confectioners' Dictionary,' by John Nott.

‡ 'Cook's Guide.'

Soyer's Porridge of Cockles, oysters or mussels, for the poor. They make a most nourishing and palatable food, and on the coast a very economical one.—Take two dozen oysters, or if you use cockles or mussels, take a quart of either, put them into an earthen jar with their liquor, and three tablespoonfuls of flour; place it on the fire, and stir them round and round; add a little salt and pepper, and they are done. Eat them thus, or add them to soup or porridge. A little dripping or lard is an improvement, also a bay-leaf, mint, or an onion sliced.

Scalloped Cockles.—Wash the cockles well, then scald some dozens of them; strain the liquor into a stew-pan, and add thereto two ounces of butter, mixed with two ounces of flour, a little cream, anchovy, nutmeg, and cayenne; stir the sauce over the fire, to boil and reduce, for ten minutes, then add a couple of yolks of eggs, a little lemon-juice, and some chopped parsley; add the cockles; stir all together over the fire for a few minutes, and fill some scallop shells with this preparation. Cover them over with a thick coating of fried bread-crumbs; place them on a baking-sheet in the oven for five minutes, and serve hot.*

Ragoût of Cockles.—Clean your cockles, open them and take them out of their shells, toss up some mushrooms in butter, put in your cockles with a bunch of sweet herbs, and moisten the whole with half of their own liquor, and as much fish-broth; add some parsley shred small, and some pepper; when ready, thicken with a fish cullis, let it be of high relish; and serve up hot.*

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* Francatelli.

Cockle Pie.—Wash them well, put into a stew-pan to open; then take them out of their shells and parboil them; wash them very clean in the water they were boiled in, and a little white wine; mince them small with the yolks of hard-boiled eggs; season with salt, pepper, and nutmeg, and squeeze in the juice of one or two oranges (Seville are the best); put them in your dish covered with paste, close them up, and bake them; when baked, liquor with butter, and white wine, and garnish with slices of orange.†

To Stew Cockles.—Clean them and wash them from the sand in three or four waters; boil them and pick them out of the shells. To a pint of the fish put half-a-pint of fish stock, two ounces of butter, and some pepper and salt; add a spoonful of flour, stirred in gradually, and simmer over a slow fire until it is of a proper thickness; add a large spoonful of essence of anchovy, and one of mushroom ketchup.‡

To Stew Cockles (A Gower Recipe).—Wash the cockles well and put them in a saucepan on the fire to open; this requires care, as, if they are left on long they become very tough; they should only just be warmed enough to make them open. The usual way of boiling them until they fall to the bottom saves trouble, but spoils the fish. Fry some bacon, then take it out of the frying-pan and keep it warm, and put a quart of cockles into the fat that flowed out of it. Fry the cockles for some time, stirring them constantly, but do not brown them much; then add a tablespoonful of flour mixed in half-a-pint of water, or rather more, and a little pepper; let them stew in the frying-pan (shaking it frequently), until the flour is set. Serve them as hot as possible, and garnish with the bacon, or not, according to taste.

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* 'Lady's Companion,' vol. i.

† Ibid.

‡ Murray's 'Modern Cookery.'

The natives of the seigniory of Gower cook cockles in various ways; sometimes they fry them with ham. They also make excellent pies of cockles with chopped chives, a layer of bacon being placed at the bottom of the dish; or they fry the cockles with oatmeal and chives, or oatmeal alone; they also make of them an excellent and nutritious soup.

In Ireland, the common cockles are cooked in their shells over the fire, and eaten with oaten cake. The shells are separated by twisting them apart, and a little butter is put into the shell, which is then placed on the turf-fire till the fish inside is fried.

Mr. Blackburn, in his 'Travelling in Spain in the Present Day,' says, that one of the best dishes at Seville is composed of rice, pimentoes, cockles (including sand and shells), well boiled in oily gravy.

CARDIUM RUSTICUM, or TUBERCULATUM, Linnæus. *Red-nosed Cockle.*—Shell nearly three inches in length, and two in breadth; very solid, subrotund, opaque, with twenty-one or more broad ribs which radiate from the beaks, with knots or tubercles on them, which on the anterior slope are flat, and even wanting in young specimens, and on the posterior side are more pointed and rugged; the interstices between the ribs coarsely striated. Umbones prominent; beaks incurved. Ligament large, central tooth large, and the lateral teeth remote.

This large, handsome cockle is essentially a Mediterranean species, and is rare and local in England. It is found on the Devonshire coast, at Paignton, and occasionally at Dawlish, and at certain times of the year, especially in the spring after a gale from the east, numbers may be gathered. On paying a visit to the Paignton sands, for the purpose of shell collecting, in the spring of 1862, the beach was quite strewn with broken single valves of this cockle, and there had evidently been quantities of live specimens washed up as well, as we met many persons returning home with their baskets heavily laden with them.

Cardium rusticum varies in colour, from nearly white to a rich rufous-brown; sometimes there is a white band round the shell, and one of a dark chestnut-brown towards the margins. The colouring of the animal is most beautiful, the body being of a pink or pale vermilion, the mantle yellow or reddish, and the long foot of a most brilliant crimson. This foot terminates in a hooked point, and when stretched to its utmost is nearly four inches in length. It is by means of this organ that the cockle can bury itself in the sands, and also take those wonderful leaps of which we read in Mr. Gosse's interesting work, 'The Aquarium,' and again in his 'A Year at the Shore,' where he mentions that a specimen was seen to throw itself over the gunwale of a boat when laid on the bottom boards. Mr. Gosse states, in this latter work, that the mode of leaping is performed as follows:—"The long taper foot is thrust to its utmost, and feels about for some resisting surface, a stone, for instance, which it no sooner feels than the hooked point is pressed stiffly against it, the whole foot, by muscular contraction, is made suddenly rigid, and the entire creature,—mantle, siphons, shell, and all, is jerked away in an uncouth manner."

There is another cockle found also at Paignton, which is even more scarce than *Cardium rusticum*, viz. *Cardium aculeatum ;* it is larger and not so solid, with long spines on each rib, and is of a pale brownish-pink or flesh colour. It is very good to eat. I have had splendid specimens sent to me, alive, from Paignton, in a jar, with seaweed; some measuring more than three inches in length, and two-and-a-half in breadth, and I have taken them myself at Langston Point, near Dawlish. The foot of the animal is long, and of a reddish-pink, but not nearly so vivid or brilliant in colour as that of *Cardium rusticum.* It is also an inhabitant of the Mediterranean.

Paignton method of Cooking the Red-nosed Cockle.—Cleanse them for a few hours in cold spring water, and then fry them in a batter made of bread-crumbs.*

Cockle Soup.—After the cockles have been well washed, place them in a stew-pan over a slow fire till they open, and then take them out of their shells. Put an ounce of butter or lard, some finely-chopped parsley, a sliced onion, a little pepper, and a teaspoonful of anchovy, into a saucepan, with a little flour, and fry till it becomes brown. To this add a pint of water, or a pint and a half of milk, and when it boils, place in your cockles. Let it boil again for half an hour, then serve. The cockles being large will require to be cut in halves or quarters, previous to their being put into the soup; and the quantity required would be about two pounds' weight.

Pickled Red-noses.—Wash the shells well, then place them in a saucepan of cold water with some salt in it. Let them simmer until the water *boils up*, when they are considered fully cooked; on no account allow them to remain longer on the fire. Take the fish out of the shells and wash them in clean water, then sprinkle them with a little salt and pepper; place them in a jar, and fill it up with vinegar. The fish thus pickled, should keep perfectly for a month.

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* Forbes and Hanley, 'Brit. Moll.' vol. ii. p. 15.

In the Bay of Naples, where these cockles abound, they are eaten, as we are told by Poli,* either raw, or cooked with oil, pepper, salt, herbs, and bread-crumbs. They are called *Cocciola* at Naples, and *Cappa tonda* at Venice; and Major Byng Hall† speaks of cockles stewed in oil as being greatly prized by the natives of Madrid; and *Cardium rusticum* is known in Spain by the names of *Marolos*, *Conchas*, and *Romeus*.

FAM. MYTILIDÆ.

MYTILUS.—MUSSEL.

MYTILUS EDULIS, Linnæus. *Common Mussel.*—Shell equivalved, wedge-shaped, rather pointed at the beaks. In the hinge are three or four tooth-like crenulations. Ligament internal, or nearly so, and very strong. Colour of the shell a greyish-blue sometimes radiated with darker blue. Epidermis olivaceous.

The mussel is called in Anglo-Saxon, *Muscl, Muscel, Muscule, Muscla,* which names mean that which instantly retires on being touched; in Dutch, *Mossel;* in Danish, *Muskel;* in German, *Muschel;* in French, *Moule,* at

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* 'Testacea utriusque Siciliæ,' 1795.

† 'Queen's Messenger,' p. 341.

Bordeaux, *Charron* (from the village of that name, where there is a large mussel trade); in Feroese, *Kreaklingur;* in Andalusia, *Longherone,* and in other parts of Spain, *Mocejones, Mexillones, Muscles,* and *Musclus.* The Venetian names for it are *Peschio dell' arsenale,* and *Pedacchio di mar,* and the Neapolitan, *Cozza negra,* or *Cozza di Tarento.* Mussels are used for food in many places, and also for bait, "and on some parts of the Northumberland coast the fishermen have made *mussel-gardens* for the preservation of those shellfish; they are formed by piling up stones round certain places on the seashore, between tide-marks, and are carefully watched by their proprietors."*

M. de Quatrefages, in his interesting work, 'Rambles of a Naturalist,' gives an account of the origin and development of the mussel-trade on the French coast. "An Irishman of the name of Walton was shipwrecked on the coast in 1235, near the little village of Esnandes, in the Bay of Aiguillon, and was the only person saved out of all the crew of the ill-fated vessel. He amply repaid the services which had been rendered him; some sheep were saved from the wreck, which he crossed with the animals of the country, producing a breed of sheep which is still held in high estimation. He invented a kind of net, the 'allouret,' for catching birds which skim the surface of the water at twilight or dark, and in order to make these nets thoroughly effective, it was necessary to go to the centre of the immense bed of mud, where the birds sought their food, and to secure a number of poles to support the nets, which were between 300 and 400 yards in length. On examining these poles, Walton discovered that they were covered with *mussel spawn.* He then increased the number of his poles, and after various attempts he constructed his first artificial mussel-bed, or *bouchot.* At the level of the lowest tides he drove into the mud stakes that were strong enough to resist the force of the waves, and placed them in two rows about a yard distant from each other. This double line of poles formed an angle, whose base was directed towards the shore, and whose apex pointed to the sea. This palisade was roughly fenced in with long branches, and a narrow opening having been left at the extremity of the angle, wicker-work cases were arranged in such a manner as to stop any fishes that were being carried back by the retreating tide. It was soon found inexpedient to trust only to the chance of the currents and waves that might bring in the young mussels to the poles and fences, and men frequently went to a very great distance in search of the young mollusks,—even as far as the plateau of Chatelaillon."

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* 'A Book for the Seaside,' p. 100.

M. de Quatrefages further tells us, that the little mussels that appear in the spring are called *seeds;* they are scarcely larger than lentils till towards the end of May, when they rapidly increase in size, and are then called *renouvelains,* and in July are ready for transplanting. They are detached from the *bouchots* which are situated at lowest tide-mark, and are then put into pockets or bags made of old nets, "which are placed upon the fences that are not quite so far advanced into the sea." The young mussels attach themselves by means of their *byssus* all round the pockets or bags. As they increase in size and become crowded together, they are taken out and distributed over other poles lying nearer the shore, and the full-grown mussels, which are ready for sale, are planted on the *bouchots nearest* the shore. The fishermen gather enormous quantities of fresh mussels every day, and take them in carts, or on the backs of horses, "to La Rochelle, and other places, from whence they are sent as far as Tours, Limoges and Bordeaux."

It appears that the French mussel breeders have discovered that mussels which live suspended to piles, or ropes of vessels, nets, &c., attain to a larger size, than those which live on the bottom, be it sandy, rocky or muddy; they therefore suspend thick ropes to wooden piles, and the mussels adhere by their byssus to them, the ropes are then tightened a little to prevent the animals lying on the bottom.*

The fishermen of Cherbourg consider that there are two distinct varieties of the common mussel, viz., *Mytilus incurvatus* and *Mytilus achatinus.* The former is usually sold under the name of *Cayeu,* and is much esteemed by the consumers of mussels, the flesh being more delicate and easier of digestion; and it is also stated, that the shell of this species is never inhabited by the *Pinnotheres,* which is often found in the common mussel. The *Cayeu* is generally to be found on the rocks, where it lives rather isolated; while the common mussel is found on the muddy sand. The second variety, viz., *Mytilus achatinus,* is to be met with only in the neighbourhood of the "Grand-Vey," and then only at spring-tides. It is much less esteemed as food, as it is tougher than *Mytilus incurvatus.* It is sold at Cherbourg under the name of *la Blonde,* on account of its colour.†

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* Phipson's 'Utilization of Minute Life,' pp. 163, 164.

† 'Essaie d'un Catalogue des Mollusques, marins, terrestres et fluviatiles,' par M. J. A. Macé.

The British method of rearing mussels differs from that of the French. By the latter, endeavours are made to intercept the spat, as we have already seen, and by the former, the young mussels are removed from the grounds where they have been deposited, as soon as they are sufficiently large, to positions up estuaries, at some distance from the sea, where they are uncovered at low-water. They grow and fatten by the admixture of the fresh-water with the salt-water.*

The Billingsgate market is chiefly supplied with mussels from Holland, the east coast of England, Cornwall, and Devonshire, in August and September; though smaller quantities are received from other parts of our coasts, besides those above mentioned. About ten or twenty tons' weight arrive at a time, though, of course, the quantity varies according to the season, and they are sold at 1*s.* a measure. In the evidence given before the Fisheries Commission at Exeter, December 24, 1863, it was stated, that the price of these shellfish taken in the estuary at Lympstone, was 8*s.* per sack of ten pecks, but that the supply was decreasing.

Mussel culture is now successfully carried on, on the Boston Deep beds. Mr. Frank Buckland stated, in his examination before the Select Committee on Oyster Fisheries, in 1876, that, since the Lynn and Boston corporations have taken the beds under their protection, the mussels have increased immensely. The average value of these shellfish in the Lynn Deep alone, is about £3400 a year. There are 16 bags, or 32 bushels, in a ton of mussels, and each ton is worth about £1.

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* 'Fish and Fisheries,' edited by David Herbert, M.A. 'Best Means of Increasing Mussels,' &c., by J. C. Wilcocks.

Dr. Knapp informed Messrs. Forbes and Hanley that the quantity of mussels consumed in Edinburgh and Leith is about 10 bushels per week, "say for forty weeks in the year, in all 400 bushels annually. Each bushel of mussels, when shelled and freed from all refuse, will probably contain from 3 to 4 pints of the animals, or about 900 to 1000, according to their size. Taking the latter number, there will be consumed, in Edinburgh and Leith, about 400,000 mussels. This is a mere trifle compared to the enormous number used as bait for all sorts of fish, especially haddocks, cod, ling, halibut, plaice, skate, &c.; and at Newhaven the total consumption of mussels for bait may be reckoned at 4,320,000 annually. There are nearly as many used at Musselburgh, Fisherrow, &c., and other places on the Frith of Forth, and we may calculate that 30,000,000 or 40,000,000 of mussels are used for bait alone by the fishermen of that district each year."*

We learn from Mr. P. Wilson, late Inspector of Fisheries at Eyemouth, in Scotland, that in one week alone, sixty-one tons of mussels were used for baiting the long lines, by the boats from the fishing stations of Eyemouth, Burnmouth, and Coldingham, the cost of which was about £160, the produce in fish from which was 25,620 stone, worth £2500.†

Mussels are considered to be the best bait for salt-water fish, and will keep alive two days, when taken from the shell, and suspended on a hook in sea-water.

The mussel has the power of attaching itself by means of its "byssus," to rocks and stones; and we read that the bridge at Bideford, in Devonshire, cannot be kept in repair by mortar, owing to the rapidity of the tide. "The corporation, therefore, keep boats to bring mussels to it, and the interstices of the bridge are filled by hand with these shellfish, and it is supported entirely by the strong byssus or threads these mussels fix to the stonework."*

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* Forbes and Hanley, 'British Mollusca,' vol. ii. pp. 174, 175.

† 'Molluscs, Mussels, Whelks, &c.,' by Charles Harding.

This byssus proceeds from a gristly shaft, which, Dr. Jeffreys states, appears to support the bundle of filaments like the handle of a broom; and Aristotle mentions this shellfish in his list of cartilaginous fish.

So valuable are mussels towards the protection of the shores from the inundations of the sea on some parts of our coasts, that it becomes necessary to prevent their being gathered in some places (see 'Times,' August 7th, 1865). An action for trespass was brought some time ago for the purpose of establishing the right of the lord of the manor to prevent the inhabitants of Heacham from taking mussels from the seashore. The locality is the foreshore of the sea, running from Lynn in a north-westerly direction towards Hunstanton, Norfolk; and "the nature of the shore is such that it requires constant attention, and no little expenditure of money, to maintain its integrity, and guard against the serious danger of inundations of the sea." A large quantity of shingle, seaweed, and mussels is always to be seen, and beds of mussels extend for miles along the shore, and mix with the seaweed and shingle, which get fixed on the artificial jetties running into the sea, attaching themselves by means of the byssus to these embanking defences, thereby rendering them firm, and thus acting as barriers against the sea; therefore, while it is important for the inhabitants, who claim a right by custom to take mussels and other shellfish from the shore, it is equally important for the lord of the manor to do his utmost to prevent these natural friends of his embankments and jetties, from being removed in large quantities from his part of the shore.

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* 'Glimpses of Ocean Life,' p. 179.

According to Mr. Frank Buckland, the mussel is a great hindrance to the development of oyster-beds. "The mussel spat is sent forth, and the young mussels fall down upon the oyster-beds, and spin their webs over them, like beautiful silk ropes, by means of which they hold on to rocks and other things. They accumulate the mud, and the mud covers the oysters."

Neumann tells us that calcined mussel-shells make strong lime and bind quickly, and that shell-lime is generally considered stronger than stone-lime. Mussel-shells, when polished, make pretty pincushions and needle-books, and at the colourists they are filled with gold, silver, and bronze, and sold for heraldic painting and illuminating. It was in one of these shells, also, in which the witch, in the quaint old story, put to sea for the purpose of wrecking her enemy's ships.

A large species of mussel, called *awabi*, or *awabee*, is said to be used in Japan as a new year's gift. The day is spent in paying respects, visiting, and giving presents to friends and relatives, and they mostly consist of *awabi*. I believe, however, that it was not a *mussel* that was given as a new year's gift, but the large *Haliotis gigantea*, which is called *awabi*, by the Japanese, as we shall presently see. *Awabi*, in days of yore, were the first sustenance and support of the Japanese, as acorns were formerly the primitive diet of the inhabitants of Europe, and the *awabi* is the emblem, or rather the memorial, of the frugality of their forefathers.*

There is another purpose for which these shells are used, which would astonish the "Truefitts," of the present day; for Grey, in his 'Australia,' mentions that amongst the contents of a native woman's bag was a mussel-shell for cutting the hair.

There is an interesting account in Captain O'Brien's 'Adventures during the late War,' of the method of fishing for mussels in the Bay of Concepcion. A man and woman in a canoe push off from the shore, to a certain depth, when the man with a long pole ascertains the depth of the mussel-bed. This pole, which has a sharpened end, is struck into the bed, and serves as the anchor or mooring for the boat; the woman, with her arms round it, makes it her line of descent. With this as a conductor, she slides or slips down, and soon reappears with her arms crossed round the pole, but with both hands as full as they can hold of mussels. Having deposited her handfuls in the canoe, she descends again and again six or eight times, until her cargo is complete. Upon Captain O'Brien's remonstrating with a man for imposing such a dangerous duty upon a woman, instead of undergoing it himself, he explained to him, that this diving was a privilege of the sex, and that no man would dare to be so unmanly as to rob a woman of her birthright. These Chilian, or Bay of Concepcion belles, sell their produce in the market for dresses and finery.

The usual size of the common mussel is about two inches and a half in length, and about half that in breadth; but in 1862 I produced two specimens from Exmouth, which had been dredged, the largest measuring five inches in length and two and a half in breadth, the other four inches long and one and a quarter wide. Large mussels are brought from Padstow, and are sold in the Truro market ready boiled for eating, and, when cooked, the fish measures quite two inches in length; the colour is like the yolk of a hard-boiled egg and the flesh is very sweet and tender. The shells of these, measured four inches in length, and two and a half inches in breadth. Though mussels are a valuable article of food, and considered wholesome, yet many cases of poisoning by mussels have occurred; but it may generally be traced to their having been gathered from either the sides of docks, or piers, where there are copper bolts or nails, or from ships that are copper-bottomed; or else from the neighbourhood of large town sewers, the sewerage water running over the rocks on which the mussels grow. In the 'Field,' November 15th, 1862, is an interesting account of an experiment made on oysters that had become so impregnated with copper as to be as green as verdigris. They were taken from Falmouth harbour. An attempt was made to extract the copper from them; and, after putting a hundred or more into a large crucible, reducing them to ashes, and continuing to increase the heat until the copper was melted; the produce was a bright bead of pure copper, which, according to the description, would be about the size of a large pin's head. Mr. Penwarne, who communicated this article to the 'Field,' adds, that the oysters may have lain on a lode, or the copper might have accumulated from the wash of the stamping-mills. This proves, without doubt, that shellfish can be impregnated with copper or other poisonous substances, which probably would affect those who ate them. Some persons consider that mussels are unwholesome if a small species of crab (*Pinnotheres pisum*, or *Pinnotheres veterum*), which is sometimes found in their shells, is not carefully taken out; others, that they are only fit for food in the winter months; and by some on account of their feeding on the spawn of the star-fish, which is poisonous.* It is said that if a silver spoon is boiled with the mussels, and it turns black, it proves that they are poisonous, and not fit to be eaten. But, whatever may be the cause of the wholesale poisoning by these shellfish, they have been the means of saving many poor from starvation in times of scarcity. Mr. Patterson, of Belfast, in his 'Introduction to Zoology,' mentions having been informed by an old inhabitant of Holywood, near the above-mentioned town, that in 1792, or 1793, there was a great drought prevailing, which caused much distress, and that in the month of June or July, twenty poor families from the interior of the country encamped on the roadside, near the beach to the west of Holywood, remaining there about five weeks, subsisting partly on such vegetable matter as they could pick up about the hedgerows and fences, but principally upon the mussels which are so abundant on the extensive mud-banks of the neighbouring coast. No instance of disease from this diet occurred, and during that summer the poorer classes in the village appeared quite as healthy as in other years, though mussels formed their chief food.

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* 'Religious Ceremonies,' vol. iv. p. 315.

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* 'British Conchology,' vol. ii. p. 109.

Some of the natives inhabiting the Patagonian Channels between the Gulf of Penas and Smyth's Channels, live the greater part of the year almost entirely on mussels and limpets, varied occasionally by the capture of a seal or small otter.*

Athenæus says that mussels are moderately nutritious and digestible, the best being the Ephesian kind, which are particularly good when taken about the end of autumn (vol. i. p. 150).

In the Feroe Isles, the large horse-mussel, *Mytilus modiolus* is eaten, and they call it in Feroese *Ova*. Mr. Alder tells us that at Rothesay they are collected for food † (though not so delicate as *Mytilus edulis*), and in the Shetland Isles for bait, where they are known by the name of *Yoags*. They are also eaten in the north of Ireland, but not considered very good, on account of their strong scent and flavour; but they are capital bait for cod. In Labrador the bait generally used at the commencement of the cod-fishing season, viz., in May and June, consists of mussels salted for the purpose; but as soon as the capelings (*Mallotus villosus*) reach the coast, they are substituted, to save expense; and in many instances the flesh of gannets and other sea fowl is employed.‡

At Tenby, they call *Mytilus modiolus* the poisonous mussel, and affirm that no one ever ventures to eat it.

Pearls are occasionally found in the common mussel, and also in the oyster, scallop, cockle, periwinkle, and pinna; but they are generally inferior in size and quality to those of the freshwater pearl-mussel, *Unio margaritiferus;* and Mr. Beckman, in his 'History of Inventions,' states that real pearls are found under the shield of the sea-hare (*Aplysia*), as has been observed by Bohadsch, in his book 'De Animalibus Marinis' (Dresdæ, 1761). Our Scotch pearl-fishery has, within the last few years, been revived, and in 1860 Mr. Moritz Unger, a foreigner, on making a tour through the districts where the pearl-mussel abounds, found that the pearl-fishing was not altogether forgotten, many of the people having pearls in their possession, of which they did not know the value. He purchased all he could obtain; consequently, in the following year, many persons devoted their spare time to pearl-fishing, and during the summer months made as much as £8 to £10 weekly. The summer of 1862 was most favourable for fishing, owing to the dryness of the season, and the average price was from £2 6*s.* to 10*s.*; £5 being a high price. They now fetch prices varying from £5 to £20. The Queen purchased one Scotch pearl for 40 guineas; others at high prices have been bought by the Empress of the French and the Duchess of Hamilton, and Mr. Unger had a necklace of these pearls valued at £350.* In 1867, at the September meeting of the 'Perthshire Society of Natural Science,' attention was called to the probability of the ultimate extinction of the pearl-mussel *Unio margaritiferus* in the rivers near Perth, owing to the quantities destroyed in search of pearls, thousands of shells being left on the banks of the rivers where the pearl-fishers had pursued their searches.* These mussels are found in Lochs Earn, Tay, Rannoch, and Lubnaig, and in the Don, the Leith, and in many of the other Scotch streams; also in some of the Welsh rivers, from whence I have received fine specimens; in Ireland, near Enniskillen, and in the river Bann, which is noted for its fine pearls.

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* 'Cruise of the Alert,' p. 48.

† Forbes and Hanley, 'Brit. Mollusca,' vol. ii. p. 185.

‡ 'Life and Adventures of John James Audubon,' edited by R. Buchanan, p. 246, chap. xlii.

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* The 'Times,' December 24, 1863.

Sir Robert Redding, in a letter dated Dublin, October 13th, 1688,—as quoted by Dr. Boate in his 'Natural History of Ireland,'—says "that there are four rivers in the county of Tyrone abounding with pearl-mussels, all emptying themselves into Lough Foyle, whereon stands the town of Derry. There are also other rivers in the county of Dunnagall, a river near Dundalk, the Shure, running to Waterford . . . . And no doubt there may be many more that I do not know; all these places are at the feet of very great mountains. The manner of pearl-fishing is not extraordinary, the poor people, in the warm months, before harvest is ripe, whilst the rivers are low and clear, go into the water, some with their toes, some with wooden tongs, and some by putting a sharpened stick into the opening of the shell, take them up; and although by common estimate not above one shell in a hundred may have a pearl, and of those pearls not above one in a hundred be tolerably clear, yet a vast number of fair merchantable pearls, and too good for the apothecary, are offered for sale by those people every summer assize. Some gentlemen of the country make good advantage thereof, and myself, whilst there, saw one pearl bought for 50*s.*, that weighed 36 carats, and valued at £40."

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* 'Naturalist's Circular,' No. 17, October, 1867.

The pearl-mussels are collected in the same manner now, viz., by wading for them in shallow pools, or by thrusting a long stick between the valves when the shell is open. When a number have been collected they are left to decompose, when the pearls drop out.* They may also be found in Kerry, in the Moy, near Foxford, and in many of the other Irish rivers; and Mr. Buckland stated in the 'Field,' December 10th, 1864, that they abound near Oughterard, and that a man called "Jemmy the Pearl-catcher" told him he knew when a mussel had a pearl in it, without requiring to open it first, because "she (the mussel) sits upright with her mouth in the mud, and her back is crooked," that is, it is corrugated like a cow's horn. Bruce, in his 'Travels,' observes that the pearl-fishers of Bahrein informed him that they had no expectation of finding a pearl when the shell was smooth and perfect, but were sure to find some when the shell was distorted, and deformed; and he adds that this applies equally to the Scotch pearl-mussels. In France they also collect pearls from the pearl-mussels, and they generally sell them as *foreign* pearls. At Omagh, in the north of Ireland, there was formerly a pearl-fishery, and Gilbert, Bishop of Limerick, about 1094, sent a present of Irish pearls to Anselm, Archbishop of Canterbury. Pearls were much used in Irish religious ornaments in the fifteenth and sixteenth centuries. Scotch pearls were in demand abroad as early as the twelfth century. In the fourteenth century (1355) Scotch pearls are referred to in a statute of the Parisian goldsmiths, by which it was enacted that no worker in gold or silver should set them with oriental pearls, except in large ornaments or jewels for churches. In the reign of Charles I., the Scotch pearl trade was considered of sufficient importance to be worthy of the attention of Parliament.*

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* 'Tour in Ulster.'

John Spruel in 'An Accompt Current betwixt Scotland and England,' Edinburgh, 1705, says, "If a Scotch pearl be of a fine transparent colour, and perfectly round, and of any great bigness, it may be worth 15, 20, 30, 40 to 50 rix-dollars, yea, I have given 100 rix-dollars (£16 9*s.* 2*d.*) for one, but that is rarely to get such . . . . . . I have dealt in pearl these forty years and more, and yet to this day I could never sell a necklace of fine Scots pearl in Scotland; nor yet fine pendants, the generality seeking for oriental pearls, because further fetcht. At this very day I can show some of our own Scots pearl, as fine, more hard and transparent than any oriental. It is true that the oriental can be easier matcht because they are all of a yellow water; yet foreigners covet Scots pearl." Suetonius says that the great motive of Cæsar's coming to Britain was to obtain its pearls, and states that they were so large that he used to try the weight of them by his hand, and dedicated a breastplate made of them to Venus Genetrix.†

Oriental pearls are found in the *Meleagrina margaritifera*, or pearl-oyster, which belongs to the family Aviculidæ.

The common freshwater *Unio* (*Unio tumidus*), and also *Unio pictorum*, both produce pearls, but they are generally small, and of a bad colour; sometimes I have found several in one shell, and again, I have opened many, and not been successful.

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* 'The Scotch Pearl Fishery' ('The Wesleyan and Methodist Magazine,' January, 1865, from the 'Times' and the 'Scotsman').

† Camden's 'Britannia,' p. 962.

A species of freshwater mussel, *Anodonta cygnea*, is said to be eaten in the county of Leitrim by the peasantry, and *Unionidæ* are eaten in the south of Europe, either roasted in their shells and drenched with oil, or covered with bread-crumbs, and scalloped; and, according to Dr. Wilhelm Gottlob Rosenhauer, *Unio Requienii*, and *Unio litoralis*, which are found near Granada, in the river Jenil, are often brought to the market; but when the fish are taken out of their shells and cooked, they are described as very tough food. *Anodontæ* and *Unionidæ* (Anodontes et Mulettes), are employed by the fishermen in the neighbourhood of Nantes for bait;* and I have occasionally used *Dreissena polymorpha*, for the same purpose, which seemed to be greatly appreciated by the fish in the pond where I was fishing, as they greedily sucked off the bait as fast as it was put on the hook. The *Dreissenæ* were brought from the canal at Sawley, Leicestershire, and turned into the ponds, where they have thriven wonderfully, and are the favourite food of water-rats, if one may judge from the number of empty shells deposited on the banks, amongst the rushes, in small heaps sometimes two or three inches deep. In some countries the shells of the large *Anodontæ* are used for skimming milk. In China, in the province of Nanking, *Anodonta edulis* (Heude) is said by M. R. P. Heude to be cultivated in the large canals of Song-kiang-fou for eating purposes,† and in the Chinese market at Ta-kou *Anodontæ* are brought in basketfuls from the Pei-ho river and sold as food.* The valves of *Unio tientsinensis*, the Ko-fen of the Chinese, are used by them as a powder in medicine, and occasionally as one of the ingredients in pills, as a substitute for pearls.†

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* 'Catalogue des Radiaires,' etc., par Frédéric Cailliaud, de Nantes.

† 'Diagnoses Molluscorum in fluminibus provinciæ Naukingensis

The pearl-mussels *Dipsa plicatus*, and the *Alasmodontæ*, both belonging to the family *Unionidæ*, are used for the artificial production of pearls in China. The art of artificial pearl-making is of great antiquity. The Chinese attribute it to a native of Hutchefu, named Yé-jin-Yang, who lived in the thirteenth century. His memory is still honoured by those who practise the art, and there is a temple especially dedicated to him. There is a large manufactory of these artificial pearls in the neighbourhood of Canton, and at Hutchefu, near the river Ning-Po. In the months of April and May the *Dipsas*, and *Alasmodontæ*, are furnished with matrices of metal, placed between the shell and the mantle of the fish. In one year they are incrustated with the nacre; but sometimes they are left longer to obtain a thicker coating. Thus are produced the little figures of idols with which the Chinese ornament their hats and caps.‡ The valves of *Dipsa plicatus* are used also for weighing grains of rice, &c.

In the north-western part of Australia, a freshwater mussel forms a staple article of food, while in the south-western part of the continent the natives will not touch them, but regard them with a superstitious

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Collectorum,' auctore, R. P. Heude, S.J. 'Journal de Conchyliologie,' tome xxii. 1874.

* 'Notice sur la Malacologie de quelques points du littoral de l'Empire Chinois,' par Odon Desbeaux, 'Journal de Conch.'

† 'Essai sur la Pharmacie et la Matière Médicale des Chinois,' par J. O. Desbeaux.

‡ 'Journal de Conchyliologie,' P. Fischer, tome xiii. 1865.

dread and abhorrence. In Grey's 'Australia' he gives an account of a native, Kaiber by name, whom he ordered to gather some of these shellfish for food, as they were nearly dying from hunger; but the man steadfastly refused, as he affirmed that by touching them, the native sorcerer, or "Boyl-yas," would acquire a mysterious influence over him, which would end in his death. At last, however, he was ordered to bring some instantly, as Mr. Grey intended eating them. After thinking for a moment or so, Kaiber walked away for this purpose, but bitterly lamented his fate whilst occupied with his task. It was true, he said, he had not died of hunger or thirst, but this was all owing to his courage and strong sinews; yet, what would these avail against the supernatural powers of the Boyl-yas. "They will eat me at night, whilst worn-out by fatigue I must sleep." However, the mussels were brought, and Mr. Grey made a meal of them.* It is not only of late years that *Mytilus edulis* has been thought worthy to grace our table, for in 1390 we have the following recipes given in a "role" of ancient English cookery, compiled by the master cooks of King Richard II., called the 'Forme of Cury:'—

"*Muskels in brewet* (*broth*), 122.—Take muskels (mussels), pyke them, seeth hem with the own broth (in their own liquor). Make a lyor (mixture) of crustes (*i.e.* of brede) and vinegar; do in onyons mynced, and cast the muskels thereto, and seeth it, and do thereto powder, with a lytel salt and safron. The samewise make of oysters.

"*Cawdel of Muskels*, 124.—Take and seeth muskels, pyke (pick) hem clene and waishe hem clene in wyne. Take almandes and bray hem. Take some of the muskels and grynde hem, and some hewe small. Draw (mix up) the muskels yground (that are ground) with the self (same) broth. Wryng the almandes with faire (clean) water. Do all this togider. Do thereto verjous (verjuice) and vinegar. Take whyte of lekes, and parboil hem wel. Wryng out the water, and hew hem small. Cast oile thereto, with onyons parboiled, and minced small. Do thereto powder, fort, safron, and salt; a lytel seeth it, not to stondyng (too thick), and messe it forth."*

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* 'Australia,' vol. ii. pp. 84, 85.

Soyer's Recipe for Cooking Mussels.—Take three dozen mussels, wash them and place in a stew-pan over the fire for ten minutes, to open the shell (sometimes a small crab will be found in them, which remove, as they are rather unwholesome); replace them with their liquor, and bottom shell, in the pan; add a spoonful of flour, mixed with some butter or lard, and a spoonful of chopped parsley; stir it, and stew for five minutes, and serve. If required in large quantities, take the large boiler, put therein four pounds of lard or butter and four pounds of sliced onions; fry for five minutes. Have ready two pailfuls of mussels out of the shell, and in their liquor, which put in the boiler with one pound of salt, two ounces of pepper, two ounces of sugar, two pounds of chopped parsley, and two pounds of flour, mixed with water to the thickness of good cream; boil ten or fifteen minutes, stir it gently with a wooden spatula, and serve. If not required maigre, use instead of water, the same quantity of boiling stock mixed with flour; a flavour of herbs may be given if liked, and bits of meat added to it.

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* 'Antiquitates Culinariæ,' by the Rev. Richard Warner, p. 23.

Mussel Soup.—Take the liquor that flows from the mussels when open on the fire, and strain it through a fine napkin; put it into some good broth; add the yolks of six eggs beat up with it, thicken it over the fire, and put it into your soup when ready to serve, arranging the mussels round the dish.*

Mussel Soup with Crawfish.—Take a hundred mussels, wash them very clean, put them into a stew-pan, cover them close. Let them stew till open, then take them out of their shells, strain the liquor through a fine sieve over the mussels. Take a dozen crawfish, pound them up with a dozen of almonds blanched and beat fine; then take a small parsnip, and a carrot scraped and cut into thin slices; fry them brown, with a little butter. Take two pounds of any fresh fish, and boil in a gallon of water, with a bundle of sweet herbs, a large onion stuck with cloves, whole pepper, black and white, a little parsley, a small piece of horseradish, and salt the mussel liquor, the crawfish and the almonds. Let this boil till half is wasted, then strain it through a sieve, put the soup into a saucepan, with twenty of the mussels, a few mushrooms and truffles cut small, and a leek cut very small. Take two French rolls, take out the crumb and fry it brown, cut it into little pieces, put it into the soup, and let it boil altogether for a quarter of an hour, with the fried carrot and parsnip. In the meantime take the crust of the rolls fried crisp, half a hundred of the mussels, a quarter of a pound of butter, a spoonful of water, and shake in a little flour, then set this on the fire. keeping the saucepan shaking all the time till the butter is melted. Season with pepper and salt; beat the yolks of the eggs and put them in, stir all the time for fear of curdling, add a little grated nutmeg. When it is thick and fine, fill the rolls, pour your soup into the dish, place in the rolls, and lay the rest of the mussels round the rim of the dish.*

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* 'French Family Cook.'

Mussels à la Poulette.—Take two quarts of mussels —the smallest are the most delicate; scrape the shells carefully, with a knife, and wash in water, changed several times, till perfectly free from grit. Put one quart of the mussels in a sauté-pan, with a sliced onion, four ounces, a few sprigs of parsley, say one ounce, two pinches of salt, two small pinches of pepper, one pint of French white wine. Cover the sauté-pan; put it on the fire, and toss the mussels occasionally; when the shells open the mussels are done, then take them out of the sauté-pan, and take off one shell. Put the second quart on the fire, and cook them in the same way. It is advisable to cook only half the quantity at a time, as the mussels would not be done evenly, if too many were put in the pan at once. Be careful not to let them be overdone, as this would shrink and harden them, and impair their quality.

Strain the liquor into a basin; put into a stew-pan one ounce of butter, and one ounce of flour; stir over the fire for three minutes; mix the liquor, and add enough water to produce a pint of sauce; thicken it with two yolks of eggs and half an ounce of butter, add one tablespoonful of chopped parsley. Dip the mussels in plenty of hot water; drain them well, and wipe them.

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* 'The Art of Cookery made Plain and Easy.'

Serve the mussels in their shells, pouring the sauce over them.*

Mussels à la Marinière.—Prepare and cook the mussels as in the preceding recipe, putting, however, half a pint more wine for boiling them; that is, a pint and a half instead of one pint. When the mussels are done, strain the liquor through a pointed gravy strainer, into a stew-pan; boil it, and add three ounces of butter, and a tablespoonful of chopped parsley; take off the fire, and stir till the butter is melted; drain and wipe the mussels; put them on a dish, in their shells, pour the sauce over them, and serve;—half an ounce of well washed and chopped shalot can also be added to the sauce, if the flavour is not objected to.†

Mussel Sauce.—Cleanse, beard, wash, and blanch or parboil two quarts of mussels, take all the white fat mussels out of their shells, and place in a bain-marie, reserving their liquor in a basin. Then knead four ounces of butter with two ounces of flour, some nutmeg, pepper, and salt, add the liquor from the mussels, a piece of glaze, and half a pint of cream; stir the whole on the stove fire till it boils, and keep it boiling for ten minutes, then add a season of four yolks of eggs, and pass through a tammy on the mussels; just before sending the sauce to table, throw in a tablespoonful of chopped and blanched parsley, and a little lemon-juice. This sauce is well adapted for boiled whitings, turbot, cod, haddock, and gurnet.‡

To dress Mussels.—After having well washed and scraped their shells, drain them, and put them to dry in a stew-pan over a good fire, letting them remain till the heat opens them. Then take them out of the shells one by one, being careful to pick off the beards where you find any, and put them into a stew-pan, with a bit of butter, parsley, and scallions, shred small; shake them over the fire, and put a little flour, moistening them with broth; when the sauce is consumed, put in the yolks of three eggs, beat up with cream, thicken it over the fire, and afterwards add a dash of verjuice (or lemon).*

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* 'The Royal Cookery Book,' by Jules Gouffé. † Ibid.

‡ Francatelli's 'Modern Cook.'

Mussel Fritters.—Take them out of their shells, and steep them two hours in a quart of vinegar, some water, and a little butter, rolled in flour, with salt, pepper, parsley, scallions, tarragon, garlic, a little carrot and parsnip, thyme, laurel, and basil; the whole make lukewarm, then take out your mussels, dry, and dip them in a batter made with flour, white wine, and a spoonful of oil, and salt and fry them.†

Mussels Fried.—Put them into a saucepan, in which there is as much boiling water as will cover them; when they are open, take them out and beard them; wash them in warm water, wipe them dry and flour them; fry them crisp, dish them up with butter beaten up with the juice of lemon; fry some parsley crisp and green, and throw it over them.‡

To Stew Mussels.—Clean them and wash them from the sand, in two or three waters; put them into a stew-pan, cover them close, and let them stew till all the shells are opened; then take them out one by one, and to a quart of mussels put a pint of liquor and a quarter of a pound of butter, rolled in a little flour; when they are done enough, have some crumbs of bread ready, and cover the bottom of your dish thick; grate half a nutmeg over them, and pour the mussels and sauce all over the crumbs, and send them to table.*

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* 'French Family Cook.' † Idem.

‡ Salmon's 'Family Dictionary.'

Mussel Pie.—Make a good paste, lay it all over the dish; wash your mussels clean in several waters, then put them into a stew-pan, cover them, and let them stew till they open; pick them out, and see that there be no crabs under the tongue; put them into a saucepan, with two or three blades of mace, strain the liquor just enough to cover them, add a good piece of butter, and a few crumbs of bread; stew them a few minutes; fill your pie, cover it, and bake for half an hour.†

To Pickle Mussels.—Take fresh mussels, wash them very clean, and put them in a pot over the fire till they open. Then take them out of their shells, pick them clean, and lay them to cool. Then put their liquor to some vinegar, whole pepper, ginger sliced thin, and mace, setting it over the fire; when it is scalding hot, put in the mussels, and let them stew a little; then pour out the pickle from them, and when both are cold, put them into an earthen jug (jar?) and cork it up close; in two or three days they will be fit to eat.‡

Mussels dressed à la Provençale.—Wash the mussels well several times, changing the water so as to cleanse them thoroughly; put them to dry in a saucepan over a hot fire, till the shells open. Take off one valve of the shell only. Put into a saucepan half a glass of oil, parsley, chives, mushrooms, truffles, half a clove of garlic, all chopped very fine. Put it on the fire; moisten it with a glass of white wine, a spoonful of broth, and half the quantity of liquor from the mussels. Boil this sauce, and when it is nearly reduced to half, add the mussels, with a spoonful of gravy; let the whole boil a few minutes; then add a spoonful of lemon-juice, pepper, and grated nutmeg, then serve.*

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* 'The Lady's Companion,' vol. i. p. 149.

† Ibid

‡ 'The Complete Cook,' by James Jenks, 1718.

Francatelli's Recipe for Scalloped Mussels.—Scald and beard some dozen mussels; strain the liquor into a stew-pan, and add thereto two ounces of butter, mixed or kneaded with two ounces of flour; a little cream, anchovy, nutmeg, and cayenne; stir the sauce over the fire to boil and reduce for ten minutes, then add a couple of yolks of eggs, a little lemon-juice, some chopped parsley, and add the mussels. Stir all together over the fire for a few minutes, and fill some scallop-shells with this preparation; cover them over with a thick coating of fried bread-crumbs, place them on a baking-sheet in the oven for a few minutes, and serve them quite hot. They may also be served upon neatly-shaped pieces of dry toast.

A Ragoût of Mussels.—When the mussels are well cleaned, stew them without water till they open, take them from the shells, save the liquor; put into a stew-pan a piece of butter, with a few chopped mushrooms, a little parsley, and a little grated lemon-peel; stir this; put in some good gravy, with pepper and salt; thicken this with a little flour; boil it up, put in the mussels with some liquor, and serve hot.†

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* 'Dictionnaire Général de la Cuisine Française, Ancienne et Moderne.'

† 'The Lady's Assistant.'

Another Ragoût of Mussels.—Cleanse some mussels, and put them into a stew-pan on a stove, till they open. Take them out of their shells, and keep their liquor; then blanch them in butter. Put some mushrooms in a stew-pan, with a bunch of sweet herbs, and pepper; some veal gravy to moisten the whole; then stew it on a slow fire. Your sauce being done, take off the fat, and thicken it with cullis of veal and ham; then put in your mussels with some of their own liquor, and let it do slowly, taking care that it does not boil; let it be relishing, and serve it up hot for a dainty dish.*

To Boil Mussels (Truro recipe).—Place them in a saucepan with very little water, as their own liquor helps to boil them. As soon as the shells open take out the fish, and wash them in a small quantity of cold water (about a pint), with a lump of salt about the size of a halfpenny. Open them and take out the little crab if there is one, and cut out the hard byssus.

Cullis of Mussels.—Stew them, and strain them; fry carrots, parsnips, parsley, basil, lemon, crumbs, a dozen almonds; moisten them with broth; strain and keep the broth for use.

Mussels may be served in the shells, after having been boiled, as many persons prefer to pick the fish out themselves, and eat them with cold butter.

The Neapolitans, as mentioned by Poli, eat mussels raw and fried, besides making patties and sauces of them.

Chilian Method of cooking Shell-fish.—A hole is dug in the ground, in which large smooth stones are laid, and upon them a fire is kindled. When they are sufficiently heated, the ashes are cleared away, and shell-fish are heaped upon the stones, and covered first with leaves or straw, and then with earth. The fish thus baked are exceedingly good and tender, and this mode of cooking them is very superior to any other, as they retain within the shell, all their own juiciness."* Meat dressed in the same manner is most delicious.

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* 'The Lady's Companion.'

Lithodomus lithophagus, a Mediterranean species, which also belongs to the "Mytilidæ," is generally eaten in Spain, and is called *Datil de mar*. It is also much esteemed as food on the eastern shores of the Adriatic, and the Italian names for it are *Dattolo di pietra* and *Dattolo di mar*.† *Arca Noe*, *Arca barbata*, and a species of *Pectunlulus* are eaten in Italy and Spain.

Fam. AVICULIDÆ.

PINNA.—SEA-WING.

Pinna Pectinata Linnæus. *Sea-wing*. — Shell wedge-shaped, gaping at one end, and tapering to a point at the other, equivalve, horn-colour; hinge, toothless, straight, and long; ligament, linear, strong and elastic and internal, sometimes smooth, and at others with delicate ribs which radiate from the beaks, which are straight and pointed.

The *Pinna* is the largest of our British bivalves, and specimens are found twelve inches long and seven broad at the gaping end. Many pairs of this shell were found in the spring of 1862 on the beach at Dawlish, some of them with the fish still alive in them; but they were all small, the size of the one figured. Other localities mentioned by Forbes and Hanley are Salcomb Bay (where a bed of these shells was discovered by Montagu), Weymouth, all the Dorset coast, Milford Haven, the Hebrides, Zetland, and in Ireland, off the coasts of Londonderry, Antrim, Down, &c.; and at Youghal, where they are known by the name of "powder-horns," the fishermen bring in fine specimens from the "Nymph Bank." Dr. Jeffreys was informed by Mr. Spence Bate, that at Plymouth the trawlers call the *Pinnæ*, "caper-longers," which word is supposed to be a corruption of *cappa lunga*,—the name they bear in the Mediterranean; and the familiarity of Plymouth seamen with such Italian words is accounted for by so many of our men-of-war having been at Naples. They are also known in Italy by the following names:—*Nacherone, Madre-perna, Palostrega;* and at Fiume, *Piede de caval.* In France they call them *Jambonneaux;* in Spain, *Nacre;* and in Germany, *Steemuschel.*

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* King's 'Adventures of the Beagle,' vol. i. p. 291.

† Faber's 'Fisheries of the Adriatic.'

The *Pinnæ* live in sand and mud, with the small end downwards, in an upright position, and attached by a very strong byssus of silky thread. A small species of crab lives frequently in the shell of the *Pinna;* and the following is a quaint description given by Pliny of the friendship of the *Pinna* and its little guest:—"The *Pinna* is also of the tribe of shellfishes. It is always found in muddy places, but never without a companion, which they call *pinnoteres* or *pinnophylax*, and which is a little shrimp, or in some places a crab, a searcher for food. The *pinna* first gapes open, and, being destitute of sight, exposes its body within to various little fishes, which come leaping by close to it, and being unmolested grow so bold as to skip into its shell and fill it full. The *Pinnoteres*, waiting for the opportunity, gives notice to the *Pinna* by a gentle pinch; upon which, shutting its mouth, it kills whatever is within the shell, and divides the spoil with its companion."*

Mr. Say† says, that a small crab (a species of *Pinnoteres*), which lives in the shell of the common American oyster (*Ostrea virginica*), is much valued by oyster eaters in the United States, and that in opening a large quantity of oysters, these little crabs are collected apart, and serve to gratify the palate of *gourmands*. They are only seven-twentieths of an inch long, by two-fifths wide.‡

The byssus, or silky thread of the *Pinna*, is called by the Sicilian fishermen, *lana penna*, and is manufactured into a silken fabric. It was known to the ancients, and called by them *pinna-wool*, and by the Tarentines *lana pesca*, or fish-wool. St. Basil, Bishop of Cæsarea, in Cappadocia, mentions it in one of his homilies, saying, "Whence had the *Pinna* its gold-coloured wool, that colour which is inimitable?"§

Gibbon states that the Romans called the *Pinna* "the silk-worm of the sea," and that a robe made from the silk was the gift of a Roman Emperor to one of the Satraps of Armenia.

In Aufrère's travels is a description of the mode of collecting these shellfish by the Neapolitans, and of the manufacture of different articles from the silk:—

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* Pliny, 'Nat. Hist.' bk. ix. c. 42 (or 66 Tr. Bohn).

† 'Journ. Acad. Sc. Phil.' i. 68.

‡ 'Popular Hist. Brit. Crustacea.'

§ 'Stolberg's Travels,' vol. ii. p. 151, translated by Thomas Holcroft.

"As soon as a *pinna* is discovered, an iron instrument, called *pernonico*, is slowly let down to the ground over the shell, which is then twisted round and drawn out. When the fishermen have got a sufficient number of them, the shell is opened, and the silk, called *lana penna*, is cut off the animal, and, after being twice washed in tepid water, once in soap and water, and twice again in tepid water, is spread upon a table, and suffered to become half dry in some cool and shady place. Whilst it is yet moist, it is softly rubbed and separated with the hand, and again spread upon the table to dry; and, when thoroughly dried, it is drawn through a wide comb, and afterwards through a narrow one. These combs are of bone, and resemble hair-combs. The silk thus combed belongs to the common sort, and is called *extra dente;* but that which is destined for finer work is again drawn through iron combs or cards, called *scarde*. It is then spun with a distaff and spindle, two or three threads of it being mixed with one of silk, after which they knit, not only gloves, stockings, and waistcoats, but even whole garments of it. When the piece is finished it is washed in clean water mixed with lemon-juice; after which it is gently beaten between the hand, and finally smoothed with a warm iron. The most beautiful are of a brown cinnamon, and glossy gold colour. A pair of gloves made of the *Pinna* silk may be seen in the British Museum; and in the International Exhibition some articles made of it were exhibited in the Italian Court, viz., a large shawl, gloves, and specimens of the thread in skeins."

As an article of food, the *Pinna* is nearly as good as the scallop, and Plutarch tells us that Matron, the parodist, speaks of it as forming one of the dishes at an Attic banquet, saying,—

> "And pinnas sweet, and cockles fat were there,
> Which the wave breeds beneath its weedy bed."

Indeed, if we may judge from the number of times Athenæus mentions it amongst the various eatable shell-fishes, it formed a favourite article of food amongst the ancients, and was highly prized by them, as it is at Naples in these days, where it is considered a *recherché* morsel, and too expensive for the poor people to indulge in. It is of greater value for its byssus, than for the table.

Poli remarks that it rarely appears in the Neapolitan markets. He says that it is cooked at Naples with pepper, oil, and lemon-juice, and served with baked prunes.

The large triangular-shaped *Pinna rudis* may be seen in the markets at Athens.

Pearls are found in the *Pinna*, as I have already stated, and the Oriental pearls, in the Pearl-oyster, *Meleagrina margaritifera*, which belongs to the "Aviculidæ." According to Pliny, the island of Taprobane (Ceylon) was most productive of pearls, and he considers that the most valuable were those found in the vicinity of Arabia, in the Persian Gulf. Chares of Mytilene, in his seventh book of his "Histories of Alexander," tells us that in the Indian Sea, and also off the coast of Armenia, Persia, Susiana, and Babylonia, a fish is caught very like an oyster, large and of oblong shape, containing within its shell flesh which is plentiful, white, and very fragrant, and from it the men pick out white bones, called by them pearls. And of these they make necklaces and chains for the hands and feet, of which the Persians are very fond, as are the Medes, and all Asiatics, esteeming them as much more valuable than golden ornaments.* Occasionally, they are called *stones;* and *bones*, by Greek Authors; and Tertullian calls them maladies of shellfish and warts—"concharum vitia et verrucas." Pliny states† that when pearls grow old they become thick and adhere to the shell, from which they can only be separated by a file; again, that pearls which have one surface flat and the other spherical, opposite to the plane side, are for that reason called *tympania,* or tambour-pearls, "quibus una tantum est facies, et ab ea rotunditas, aversis planities, ob id tympania nominatur." The "tympana," or hand-drums of the ancients, were often of a semi-globular shape, like the kettle-drums of the present day. Shells which had pearls still adhering to them were used as boxes for unguents.‡ Long pear-shaped pearls, called *elenchi,* had their peculiar value, resembling in form the alabaster boxes which were used for ointments. Earrings were invented by the Roman ladies, called *crotalia,* or castanet pendants, from the pearls rattling as they knocked against each other.§ The story of Cleopatra swallowing the pearl in order that she might say she had expended on a single entertainment ten millions of sesterces, is too well known to require repeating here; suffice it to say, that Pliny informs us that before the time of Antony and Cleopatra, Clodius, the son of the tragic actor Æsopus, had done the same at Rome; "he, having dissolved in vinegar (or at least attempted to do so), a pearl worth about £8000, which he took from the earring of Cæcilia Metella" *. Pliny further adds, that by way of glorification to his palate, Clodius Æsopus was desirous of trying what was the taste of pearls, and as he found it wonderfully pleasing, that he might not be the only one to know it, he had a pearl set before each of his guests for him to swallow.†

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* 'Athenæus,' vol. i. p. 155.

† Ibid. vol. ii., bk. ix., p. 433.

‡ Pliny, 'Nat. Hist.' vol. ii. bk. ix. p. 432.

§ Ibid. vol. ii. bk. ix., p. 435.

In the 'History of Banking,' by Mr. W. J. Lawson, as quoted by Madame de Barrera, is an account of a similar piece of ostentatious folly perpetrated in modern times by the wealthy English merchant, Sir Thomas Gresham. We read that "the Spanish Ambassador to the English Court, having extolled the great riches of the King his master, and of the grandees of his master, before Queen Elizabeth, Sir Thomas Gresham who was present, told him that the Queen had subjects who at one meal expended not only as much as the daily revenues of his kingdom, but also of all his grandees; and added, "This I will prove any day, and lay you a considerable sum on the result." The Spanish Ambassador soon afterwards came unexpectedly to the house of Sir Thomas, and dined with him; and finding only an ordinary meal, said "Well, sir, you have lost your wager." "Not at all," replied Sir Thomas, "and this you shall presently see." He then pulled out a box from his pocket and taking one of the largest and finest eastern pearls from it exhibited it to the Ambassador, and then ground it, and drank the powder in a glass of wine to the health of the Queen. "My lord Ambassador," said Sir Thomas, "you know I have often

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* Hor. ii. Sat. iii. 239.

† Pliny, 'Nat. Hist.' vol. ii., bk. ix., chap. 59.

refused £15,000 for that pearl: have I lost or won?" "I yield the wager as lost," said the Ambassador, "and I do not think there are four subjects in the world who would do as much for their sovereign."

It was not unusual for the Romans to adorn their horses and other favourite animals, with splendid necklaces; and we are told that 'Incitatus,' the favourite horse of the Emperor Caligula, wore a pearl collar. The Roman ladies even wore pearls at night, that in their sleep they might be conscious of the possession of these valuable gems. Julius Cæsar prohibited the use of purple and pearls to all persons who were not of a certain rank, and the latter also to unmarried women.

Marco Polo speaks of the pearl-fisheries of the Great Province of "Maabar" (Ma'bar), the name given by the Mahomedans in the 14th and 15th centuries to a tract corresponding in a general way with what we call the Coromandel Coast, and "that the king of that state hath a very great receipt and treasure from his dues upon those pearls." He gives a description of the king, viz., as follows:—"Round his loins he has a piece of fine cloth, round his neck a necklace entirely of precious stones, rubies, sapphires and emeralds, and the like of great value. He also wears, hanging in front of his chest, from the neck downwards, a fine silk thread, strung with 104 large pearls and rubies of great price. The reason why he wears this cord of 104 great pearls and rubies, is (according to what they tell), that every morning and evening he has to say 104 prayers to his idols. Such is their religion and custom, and thus did all the kings his ancestors before him, and they bequeathed the string of pearls to him, that he should do the like. The prayer consists of these words, *Pacauta, Pacauta, Pacauta,* repeated 104 times. No one is permitted to take out of the kingdom a pearl weighing more than half a *saggio,** unless he manages to do so secretly. This order has been given because the king desires to reserve all such to himself. Several times a year he sends a proclamation through the realm, that if any one who possesses a *pearl* or *stone* of great value will bring it to him, he will pay for this, twice as much as it cost."† In a note to the above, Dr. Caldwell says, that the word *Pacauta* was probably *Bagavâ* or *Pagavâ* the Tamil form of the vocative *Bhagavata,* "Lord." The Hindus believe the repetition of the name of God is an act of adoration; Jăpă, as this act is called, makes an essential part of the daily worship. No doubt the number of prayers should have been 108 (not 104), which is the mystic number among both Brahmans and Buddhists.

From the twelfth to the sixteenth centuries, extravagance in jewellery was carried to an unlimited extent at the courts in Europe; and from the reign of Francis I. to that of Louis XIII., the greater part of the jewels worn were set with pearls, and these latter were worn in preference to all other ornaments until the death of Maria Theresa of Austria.‡

The French call irregular-shaped pearls, *Perles bar-*

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* The Venetian "*saggio,*" a weight for precious substances, was one-sixth of an ounce, and corresponded with the weight of the Roman gold "*solidus,*" which was one-sixth of a Roman ounce. Appendix K. vol. ii. p. 472. Marco Polo.

† 'The Book of Ser Marco Polo,' translated and edited by Colonel H. Yule, bk. iii. chap. xvii. vol. ii.

‡ 'Gems and Jewels,' p. 27, by Madame de Barrera.

roques, and these malformations were ingeniously utilized by the fanciful taste of the cinque-cento period.*

No doubt many of my readers will remember the specimens exhibited in the loan collection at the South Kensington Museum. One was a cinque-cento pendant in the form of a siren; the head, neck, and arms, of white enamel, the body made of a very large *pearl barroque,* and a fish-tail enamelled, and set with rubies. It belonged to Colonel Guthrie, and is of fine Italian work of the sixteenth century. Another, in the possession of Messrs. Farrer, was a gold pendant jewel in the form of a ship with three masts, a large *pearl barroque* forming the hull, &c. The wedding dress of Anne of Cleves was "a gown of rich cloth of gold, embroidered with great flowers of large orient pearls." The unfortunate Mary, Queen of Scots, possessed pearls which were considered the finest in Europe, and these were purchased, in a most iniquitous manner, by Queen Elizabeth, from the Earl of Moray, for a third part of their value. Miss Strickland states (in her 'Lives of the Queens of Scotland,' pages 82 and 83, vol. vi.), that if anything further than the letters of Drury and Throckmorton be required to prove the confederacy between the English government and the Earl of Moray, it will only be necessary to expose the disgraceful fact of the traffic for Queen Mary's costly parure of pearls, her own personal property, which she had brought from France. A few days before she effected her escape from Lochleven Castle, the Regent sent these, with a choice selection of her jewels, very secretly, to London, by his trusty agent, Sir Nicholas Elphinstone, who undertook to negotiate their sale with the assistance of Throckmorton. Queen Elizabeth had the first offer of them, and the French Ambassador thus describes them :—"There are six cordons of large pearls strung as paternosters, but there are five and twenty separate from the rest, much finer and larger than those which are strung. These are, for the most part, like black muscades" (a very rare and valuable variety of pearl, with the deep purple colour and bloom of the muscatel grape).*

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* 'Precious Stones,' &c., by the Rev. C. W. King.

They were appraised by various merchants, but Queen Elizabeth was determined to have them at the sum named by the jeweller, though he would have made his profit by selling them again. Others valued them at three thousand pounds sterling; some Italian merchants at twelve thousand crowns; but twelve thousand was the price Queen Elizabeth was allowed to have them for, and Catherine de Medicis was quite as eager to purchase these pearls as her good cousin of England, knowing they were worth nearly double the sum at which they had been valued in London, having presented some of them herself to Mary. She therefore used every endeavour to recover them, but the French Ambassador wrote to inform her that it was impossible to accomplish her desire of obtaining the Queen of Scots' pearls, "for, as he had told her from the first, they were intended for the gratification of the Queen of England, who had been allowed to purchase them at her own price, and they were now in her hands." The possession of wealth and jewels is not always a source of happiness or benefit to their

* See *note*, 'Lives of the Queens of Scotland,' vol. ii. p. 83.

possessors, if we may judge from the above mentioned fact in history, and indeed it is even more clearly exemplified in the case of the eminent Mogul, who died of hunger during a grievous famine, which depopulated part of Guzerat. A large mausoleum or Mahometan tomb was erected to his memory in the suburbs of Cambay, with an inscription, telling us that during this terrible scarcity, the deceased had offered a measure of pearls for an equal quantity of grain, but not being able to procure it, he died of hunger.*

In 'History and Mystery of Precious Stones,' reviewed in the 'Morning Post,' Feb. 4th, 1884, we read, that pearls have for ages been significant of tears. Queen Margaret Tudor, cousin of James IV. of Scotland, previous to the battle of Flodden Field, had strong presentiments of the disastrous issue of that conflict. She had fearful dreams, and in one vision she beheld abundant pearls, the emblems of widowhood and mourning. A few nights before the assassination of Henry IV. of France, his consort, Marie de Medicis, dreamed that all the jewels in her crown were changed into pearls, and she was told that it signified she would weep greatly.

A pearl is described by Madame de Barrera as nearly the size of a pigeon's egg, and pear-shaped; it weighed 250 carats, and was known as "La Peregrina," and belonged to the crown of Spain. It was brought from Panama in 1560 by Don Diego de Temes, who presented it to Philip II. "It was then valued at fourteen thousand ducats, but Freco, the king's jeweller, having seen it, said it might be worth £14,000, £30,000, £50,000, £100,000, as such a pearl was priceless." In 1779 a pearl, which from its shape was called the "Sleeping Lion," was offered for sale at St. Petersburg, by a Dutchman; it weighed 578 carats, and was bought in India for £4500.

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* Forbes' 'Oriental Memoirs,' vol. ii p. 18.

The largest pearl known, I believe, is in the possession of Mr. Beresford Hope; it weighs three ounces, and is two inches long, and two and a half inches in circumference, and is set as a pendant: and the pearl necklace of the Empress of the French is one of the finest known. The Shah of Persia has a pearl valued at £60,000.*

In India rose-coloured pearls are much esteemed, for red pearls (Lohitamukti) form one of the seven precious objects which it was incumbent to use in the adornment of Buddhistic reliquaries, and to distribute at the building of a Dagopa.†

Marco Polo states, that in the island of "Chipangu" (the kingdom of Japan), the Chinese "Jih-pañ-kivé," rose-coloured pearls were abundant, and quite as valuable as the white ones, and that there some of the dead were buried and others were burnt, and that when a body was burnt they put one of these rose-coloured pearls in the mouth "for such is their custom."‡ These rose-coloured pearls were no doubt those found in the conch shells.

The most productive pearl-fishery banks lie on the west coast of Ceylon, between the eighth and ninth degree of north latitude, near the level dreary beach of Condatchy, Aripo, and Manaar.§ The other principal fisheries are those of the Bahrein Islands in the Persian Gulf, Coromandel, Catifa in Arabia (which produced the pearls purchased by Tavernier for £110,000), the Algerine Coast, the Sooloo Islands, and, in the Western world, the Bay of Panama and the Coast of Columbia, which had formerly some very valuable pearl-fisheries, for Seville alone is said to have imported thence upwards of 697 lbs. in the year 1587.

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* 'A Manual of Precious Stones and Antique Gems,' by Hodder M. Westropp.

† 'Nat. Hist. of Precious Stones,' by Koeppen as quoted in Yule's 'Marco Polo.'

‡ 'The Book of Ser Marco Polo,' by Colonel Henry Yule, C.B.

§ 'Voyage of the Novara,' vol. i. pp. 379—381.

In Western Australia pearl-fishery grounds have been discovered in the Torres Straits.

In 1864 the pearl-fishery of Ceylon suffered considerably, owing to an irruption of the skate fish, which was said to have killed the pearl-oysters; and the loss of revenue was calculated at £50,000.

A correspondent of the 'Ceylon Observer,' says, however, that the Ceylon pearl-fishery shows no sign of languishing, and that a new bank had been fished, the oysters from which are of a larger size than those hitherto obtained from this fishery. The total amount received by the government, in 1881, was £75,000 worth less than the largest fishery on record, viz., that of 1814, which gave a return of £105,000; but in the 'Journal of the Society of Arts,' Aug. 12th, 1881, as quoted from 'Colonies and India,' it is said that the pearl-fishery for that year had been one of the most successful on record. The pearls from the oysters on the banks situated off "Silavaturai," on the western coast of the island, have been famous for their purity, shape, and colour, from time immemorial, and in these attributes they far surpass those obtained from the pearl-oysters of the Persian Gulf, although, as a rule, inferior in size to the latter. . . . The pearl-oyster is said to be migratory in its habits, and for one cause or another some of the banks are for years deserted by them. The following description, from the same source, of the working of the fishery may be interesting. The inspector having sent in his report to the effect that there are sufficient pearl-oysters of mature age on the banks, the government advertises a date for its commencement. A large number of boat-owners, both Cingalese and from the opposite coast of India, apply to enrol their boats, and these probably number 150 to 180; they are divided into two fleets, sailing under red and blue flags. They proceed to the banks, which are some six miles from shore, on alternate days. Each boat provides its own crew and divers, and has on board a guard whose duty it is to see that the oysters fished are not surreptitiously disposed of. Each diver stands on a flat stone attached to the diving-rope, and, after taking a long inspiration, closes the nostrils with one hand, and descends on the stone to the bottom, where he hastily collects as many oysters in his basket as the time he is able to remain under water admits of. . . . . . At a given signal all the boats sail for the shore, where they are unloaded under inspection, and the oysters placed in the government *kottoos* (palisaded enclosures with cement floors). Here the oysters are counted, and the proportion due to the boat-owners for their services, is made over to them. The remainder, which is the property of government, is put up to auction and sold to the highest bidder. The purchasers remove their lots to private *kottoos*, where the oysters are left to decompose, to enable the pearls to be washed out.

In Ceylon, the fourth part of the pearls brought up is the diver's share. In each boat there are ten divers, each with an assistant. Before the divers descend a number of quaint ceremonies are gone through with incantations, both in the boats and on shore. So superstitious are these men, that not one of their number, Christian or idolater, would continue their employment without the countenance of the sorcerer, and in 1857 Government was compelled to pay these impostors. The chief shark-charmer was a Roman Catholic.* The same authority further states that the utmost depth in which a diver can remain safely is about seventy feet. They can remain under water from fifty to sixty seconds, and the diving is carried on from five to six hours daily. Each of the ten divers can, in the course of the day, bring up from 1000 to 4000 pearl-shells. A single oyster contains sometimes thirty or forty pearls, of which some may be worth a sovereign on the spot. The small valueless seed-pearls are burnt, and sold as pearl-lime to the wealthy Malays, to add to the betel and cabbage-nuts which they chew. The Ceylonese mix the lustreless pearls with grain, and feed their poultry with them, in whose crops the pearls regain their former brilliancy after a few minutes grinding. The crops are slit up, and the pearls taken out. It is said to be done by other Indian races, but that the pearls lose weight. In India the priests of Buddha keep up the strange belief as to the origin of pearls, which I have mentioned elsewhere, and make it a pretext for exacting what they term "Charity oysters," from the divers and boatmen of their faith for the use of Buddha, who, when propitiated, will make the fish yield more pearls in future seasons.†

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* 'Voyage of the Novara,' vol. i. p. 332.

† 'Household Words,' "My Pearl-fishing Expedition," vol. iii. p. 80.

At the Bahrein fisheries the trade is in the hands of the merchants, who bear hard on the divers, and even those who make the greatest exertions in diving can scarcely obtain a sufficiency of food.* The hardships and sufferings endured by the divers are very great. After a long dive, we are told that the natives of the Paamuto Islands may be seen squatting on the reefs with blood gushing from the ears and nose, and become quite blind for ten or twenty minutes.

Sir William Denison tells us, that the pearl-fishery of Tuttukudi or Tutikorin, in the Gulf of Manaar, has been rather productive of late years. The leading man of the pearl-divers was presented to him, and he wore, as a sort of badge of office, a gold shell with a pearl inside.†

Mr. Edward Rae mentions having purchased some fairly good pearls at Archangel, from the pearl-fisheries on the Terski coast.‡ Pearls are occasionally found by the men employed in Birmingham in making pearl-buttons, in the mother-of-pearl shells imported for that purpose. A few years since, it is stated that a small number of shells were brought to Birmingham, which, either by mistake, or through ignorance, had not been cleared of the pearls at the fishery, and a considerable number were found, and sold by the man who had bought the shells for working into buttons. One pearl sold for £40; the purchaser is believed to have re-sold it for £160, and it was said to have been offered for sale in Paris, afterwards, for £800.§

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* McCullock's 'Commercial Dictionary.'

† 'Varieties of Vice-Regal Life,' by Sir William Denison, K.C.B., p. 199.

‡ 'The White Sea Peninsula,' p. 119.

§ 'Jewellery and Gilt Toys,' by J. S. Wright, in 'The Resources, Pearls from *Meleagrina margaritifera* are used in medicine by the Chinese, in the composition of pills and powders, and, naturally, they are said to have marvellous powers of cure, on account of the costliness of the ingredients. The following is a remedy called *Paô-hing-ché,* which is used in the treatment of small-pox.

Tché-tchong (red coral) . . .	10 grammes.
,, ,, (ruby)	4 grammes.
Tchin-chou (fine pearls) . .	4 grammes.
Téou-pau-hiang (musk) . . .	6 grammes.
Pé-tché-tsé (bole earth) . . .	3 grammes.

Reduce all these substances to powder and mix them well, then, with gum and water, make them into a paste, then divide and roll into small pills, and gild them.*

The *Pinna* may be cooked in the following manner:—

Pinna Soup.—Take five or six *pinnæ,* according to their size, and after they have been well washed, put them into a saucepan on a slow fire until the shells open; then take out the fish. Chop some parsley very fine, and put it with a tablespoonful of oil or an ounce of butter, into a saucepan, and fry until it becomes brown. To this add a pint of water, and, when it boils, put in your fish, with a little salt and pepper.

Sometimes vermicelli is boiled with it, when more water must be added; or take a slice or two of bread nicely toasted, and, after cutting it up into small pieces, put it into the soup before it is served.

Products, Industrial Hist. of Birmingham,' &c., edited by Samuel Timmins.

* 'Essai sur la Pharmacie et la Matière Médicale des Chinois,' par J. O. Desbeaux.

Fried Pinnæ like Cutlets.—Take half-a-dozen of these shellfish, and, after well washing them, place them in a saucepan over a slow fire until they open of their own accord; take out the fish from their shells, and place them on a dish, covering them well with flour or bread-crumbs. Put some oil or lard into a frying-pan, and, when it begins to boil, add your fish, and fry them of a bright yellow colour. The frying-pan should be gently shaken all the time, so that the fish may not adhere together, but be quite separate. Fried parsley may be added just before serving up, and slices of lemon put round the dish.

Fam. PECTINIDÆ.

PECTEN.—SCALLOP.

Pecten Maximus, Linnæus. *Great Scallop.*—Shell suborbicular; valves very dissimilar, the upper one concave at the umbones; the under valve very convex; strong ribs, fifteen or sixteen in number; rather broad, and distinctly striated; auricles large, nearly equal; hinge without teeth; ligament internal, placed in a triangular recess.

The great edible scallop, though generally distributed in our seas, is only locally abundant. At Eastbourne and Brighton numbers are brought in by the fishing-boats, and in the spring, during the prevalence of the easterly gales, live specimens may be found on the beach at Dawlish. The London markets are supplied from various parts of our coasts, but I am told that tons of scallops and periwinkles are sent yearly from Brading Harbour, in the Isle of Wight; but the greatest supply is from Holland. They are sold at 2*s.* per dozen, and are chiefly sought after for the shell. There are large scallop beds off the Isle of Man, and the name for this shell in Manx is *Raucan*, or *Roagan.* At Vigo, *Pecten maximus* is the constant food of all classes from Christmas to Easter; after which it is only eaten by the very poor people, and there it is known by the name of *Beíra.* In Andalusia it is called *Rufína,* and in Galicia, *Vieiras* and *Avineiras.*

The French call the scallops, *Peignes, Coquilles de St. Jacques, Grosille, Grand'-pélerine, Gofiche, Palourde, Ricarde* or *Ricardot;*[*] and the name for them in German is *Jacobsmuschel, Pilgrimsmuschel,* and *Kammmuschel.* At Tarento the fishermen call this shell *Concha di San Dialogo,* and consider it a great delicacy; and formerly it grew so large there, that Horace says, "Pectinibus patulis jactat se molle Tarentum."[†] In other places it is called *Cappa di San Giacomo;* and, according to Poli, *Cozza di San Giacomo,* by the Neapolitans, and *Cappa Santa,* by the Venetians. In Sicily it is known by the name of *Pettenu.* In Youghal, these mollusks are called *Kirkeens,* or *Kirkeen thraws;* and another Irish name for them is *Sligane-mury.* In Scotland scallops are often called *clams,* and are used as bait for the white-fish lines; but other shells are called *clams,* amongst them is *Pholas dactylus,* which is generally used by us as bait, though eaten in France;[‡] and in the Shetland Isles the large *Cyprina Islandica* is the *clam.* A species of *Mya,* eaten by the natives of the Zaire or Congo river, is stated by Mr. Fitzmaurice to resemble what is usually called the *clam,* in England; and at Dawlish, the *Solen* is called the *Sand-clam.* *Lutraria maxima* is called the *Great clam,* as we have already seen. In America, *Mya arenaria* is the *soft clam,* and *Venus mercenaria* the *hard clam,* and it is from the shell of the latter that the wampum, or Indian money, is made, although other shells are used for the same purpose; the white "wampum" being made sometimes from the Bahama conch, or strombus. It is the token of peace and friendship amongst the American Indians. The coloured portion of the inside of *Venus mercenaria*—the *clam* shell—is ground into oblong pieces, varying from one quarter of an inch usually, to three quarters of an inch in length, and of the diameter of a crow's quill. The pieces are then strung together like beads, to the number of about two dozen and a half to three dozen on a string, and this is called a *string of wampum.* The worth of *wampum* is regulated very much by its freedom from white and by the intensity of its blue or purple. The manufacturers prepare two kinds, which are of different value. According to their deepness of blue, or freedom from white, is the estimation in which the pieces and strings are held. Formerly the price of a horse, a pack of beavers, or anything else, could be estimated exactly in strings and pieces of *wampum.* Belts are made of pieces of *wampum* strung together, and it is believed that the Indians adapt and arrange them in such a manner as to be significant like writing. Belts of *wampum* are, therefore, mostly delivered at treaties, and on great public occasions. In 'Flint Chips,' Mr. Stevens mentions that Mr. Granville John Penn, a descendant of William Penn, the founder of Pennsylvania, had until quite recently in his possession, the belt of *wampum,* the sole title-deed of an extensive transfer of land, delivered by the Lenni-Senape Sachem Indians to William Penn, at the Great Treaty, under the elm-tree at Shackamaxon, in 1682. It was handed down for generations in the Penn family, and was presented to the Historical Society of Philadelphia in 1857. It was composed of eight strings of "wampum," formed of white and black beads, worked upon leather thongs, and the whole made into a belt, twenty-eight inches in length by five and a half inches in breadth. The ground is of white beads, and the pattern consists of three diagonal stripes of black beads, and, in the centre, Penn is represented taking the hand of the Indian Sachem, the former being the larger figure of the two.*

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[*] 'British Conchology,' vol. ii. p. 74.

[†] Aufrère's 'Travels.'

[‡] 'Book for the Seaside,' p. 48.

The native money of New Britain consists of small cowrie-shells strung on strips of cane—called in Duke of York Island, *Dewarra*—measured in lengths. The first length being from hand to hand across the chest, with the arms extended; the second length from centre of breast to the hand, one arm extended; the third from the shoulder to the tip of the fingers along the arm; fourth, from the elbow to the tip of the fingers; fifth, from the wrist to the tip of the fingers; and sixth, finger lengths. Fish are generally bought by their length in *Dewarra*, unless they are too small. A large pig will cost from thirty to forty lengths of the first measure, and a small one, ten. The measurement of the shell-money is the same in New Britain as in Duke of York Island, though called by another name, *Taboo*.†

The deep valves of *Pecten maximus* are used by fishermen as lamps for their huts, and, according to Fuller, they were also made use of by the pilgrims in Palestine as cups and dishes; but I believe that the real Pilgrim scallop is *Pecten Jacobæus*, which is found in the Mediterranean, and is smaller, more convex, the ribs more defined and angular. The scallop was also the badge of the pilgrim, and the poet Bowles says:—

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* 'Flint Chips,' by Edward T. Stevens, pp. 460—462.

† 'Wanderings in a Wild Country,' by Wilfrid Powell.

"He clad him in his pilgrim weeds,
With trusty staff in hand
And scallop shell, and took his way,
A wanderer through the land."

Again, in Marmion, we read:—

"The summoned Palmer came in place,
His sable cowl o'erhung his face;
In his black mantle was he clad,
With Peter's keys in cloth of red
On his broad shoulders wrought;
The 'scallop shell' his cap did deck;
The crucifix around his neck
Was from Loretto brought;
His sandals were with travel tore,
Staff, budget, bottle, scrip he wore:
The faded palm-branch in his hand,
Showed pilgrim from the Holy Land."

At the present day many distinguished families bear scallop shells on their shields, showing that their ancestors had made pilgrimages to the Holy Land, or other distant shrines; and Fuller says:—

"For the scallop shows a coat of arms,
That, of the bearer's line,
Some one in former days hath been
To Santiago's shrine."

The scallop shell may be seen in the arms of the Duke of Bedford, the Earl of Jersey* (whose ancestor,

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* 'The Noble and Gentle Men of England,' by E. P. Shirley, Esq.

Sir Richard de Villars, "assumed the coat of arms, *argent, on a cross gules, five escallops or,"* in the reign of Edward I., as a badge for his services in the Crusades), the Marquis Townshend, Lord Dacres, and many others. An escallop argent, between two palm-branches vert, is the crest of Bullingham, of Lincolnshire; and that of Bower, of Cloughton and Bridlington, Yorkshire, is an escallop argent.

The arms of Buckenham Priory, Norfolk, founded about 1146, by William de Albini, Earl of Arundel, and Queen Adeliza, his wife, widow of King Henry I., were *argent, three escallops sable;* and the seal of the Priory bears the figure of St. James as a pilgrim, with the scallop shell in his hat, a pilgrim's staff in one hand, and a scrip in the other.* Another old Abbey seal, of which I have seen the impression, has the figure of St. James (or Saint Jacques de la Hovre) in his pilgrim's dress, his staff in one hand and a scrip in the other, with a scallop shell on either side of the figure. The inscription, unfortunately, I could not read, as it was indistinct. The Abbey of Reading, Berks, was under the patronage of St. James the Great, and bore as arms, "*azure, three escallops or.*"† On many monumental slabs and tombs the scallop shell appears; and in Melbourne Church, Derbyshire, in a canopied recess in the chancel, is a recumbent figure of a knight, or crusader, with mail and surcoat, with a shield on his arm bearing three scallop shells, with chevron between. The monument is much mutilated, and it is not known to whom it belongs. Again, in St. Clement's Church, Sandwich, is a slab with the date 1583, to the memory of "George Raw, gent., sometyme mayor and customer of Sandwic, and marchant adventurer in London;" with a shield bearing the arms, ermine on a chief (gules), two escallop shells (or); crest, a dexter arm embowered in armour (sable), garnished (or), holding a scallop shell. However, the escallop in heraldry is borne not only as a badge of pilgrimages, but by those who have made long voyages, have gained great victories, or have had important naval commands.*

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* Moule's 'Heraldry of Fish,' p. 223.

† 'Glossary of Heraldry,' Parker, Oxford.

It is curious to remark, that leaden coffins, ornamented with scallop shells, rings, and beaded pattern, belonging to a much earlier period, have been dug up from time to time on the sites of Roman cemeteries. Mr. C. Roach Smith, in an interesting paper on 'Leaden Coffins,' in 'Journal of the Archæological Association,' vol. ii., mentions several. Two were found at Colchester, and near one of them was an urn, in which were two coins, one of Antoninus Pius, and the other of Alexander Severus; again, in Weever's 'Funeral Monuments,' mention is made of a similar coffin (discovered in the parish of Stepney, Middlesex, in the district known to occupy the site of one of the cemeteries of Roman London), the upper part ornamented with scallop shells; having at the head and foot two jars; on the sides a number of bottles of glistening red earth, some of which were painted, and also some glass phials. The chest, or coffin, contained the body of a woman. Leaden coffins have been found at York, and in a Roman tomb at Southfleet, Kent, and other places, as well as in France; and

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* 'Crests of Great Britain and Ireland,' vol. i. p. 525, by Fairbairn.

Mr. C. Roach Smith says, "that they may, most of them, possibly be assigned to the Roman-British period."

The scallop shell appears legitimately to have belonged to pilgrims to the Shrine of St. James of Compostella, as may be gleaned from the following legend given by old Spanish writers :—

"The body of St. James, after he had been beheaded by Herod Agrippa, was taken away by his disciples, carried to Joppa, and placed on board ship (some say that this ship was of marble). The angels miraculously conveyed the body of the saint, in the ship without sails or oars, from Joppa to Galicia. It passed the village of Bonzas, on the coast of Portugal, on the day that a marriage had been celebrated there. The bridegroom, with his friends, were amusing themselves on horseback on the sands, when his horse became unmanageable, and plunged into the sea ; whereupon the miraculous ship stopped in its voyage, and presently the bridegroom emerged, horse and man, close beside it. A conversation ensued between the knight and the saint's disciples on board, in which they apprised him that it was the saint who saved him from a watery grave, and explained the Christian religion to him. He believed, and was baptized there and then, and immediately the ship resumed its voyage, and the knight came galloping back over the sea to rejoin his astonished friends. He told them all that had happened, and they, too, were converted, and the knight baptized his bride with his own hand. Now, when the knight emerged from the sea, both his dress and the trappings of his horse were covered with scallop shells ; and, therefore, the

Galicians took the scallop shell as the sign of St. James."[*]

The port where the body of St. James was landed was called Tria Flavia, now Padron.[†] In those days there reigned over the country a certain queen named "Lupa," and she and her people were plunged in wickedness and idolatry. Now, having come to shore, they laid the body of the Apostle upon a great stone, which became like wax, and, receiving the body, closed around it. This was a sign that the saint willed to remain there; but the wicked queen Lupa was displeased, and commanded that some wild bulls should be harnessed to a car, and that the body, with the self-formed tomb, should be placed on it, hoping that it would be dragged to destruction. But in this she was mistaken, for the wild bulls, when signed by the cross, became as docile as sheep, and they drew the body of St. James straight into the court of her palace. When queen Lupa beheld this miracle, she was confounded, and she and all her people became Christians, and she built a magnificent Church to receive the sacred remains, and died in the odour of sanctity. But then came the darkness and ruin, which, during the invasion of the Barbarians, overshadowed all Spain, and the body of the Apostle was lost, and no one knew where to find it, until the year 800. Florez[‡] says, that a Galician peasant discovered, in the ninth century, the spot in which was deposited a marble sepulchre, containing the ashes of St. James, owing to the appearing of certain preternatural lights in a forest; but others say that the discovery was made by Theodorier, Bishop of Tria Flavia, about 814. A rude chapel, suitable to the poverty of the Christians, was immediately built by Alphonso, the Chaste, king of Leon, and in 876, his successor, Alphonso III., erected, on the spot, a temple more worthy of the majesty of the saint.* The shells of Galicia, or scallops, belonged exclusively to the Compostella pilgrim, and the Popes Alexander III., Gregory IX., and Clement V., in their Bulls, granted a faculty to the Archbishops of Compostella, to excommunicate all who sold these shells to pilgrims anywhere except in the city of Compostella.†

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[*] 'Pilgrims of the Middle Ages,' by the Rev. E. L. Cutts, M.A. 'Art Journal,' 1861.

[†] 'Sacred and Legendary Art,' 2 vols. by Mrs. Jameson.

[‡] 'Historia Compostellana,' lib. i. cap. ii. apud, 'España Sagrada,' tome xx.

When the marriage of Edward I., king of England, took place with Leonora, sister of Alonzo of Castile, a protection to English pilgrims was stipulated for, but they came in such numbers that they alarmed the French, who threw difficulties in their way. In the fifteenth century, Rymer mentions that 916 licences were granted to make the pilgrimage to Santiago in 1428; in 1434 as many as 2460 were granted.‡ The name of "Jacobitæ," or "Jacobipetæ," was given to Compostella pilgrims, and there was an hotel in Paris on purpose for receiving them if they were bound to St. James's shrine; but the revenues failing, it was purchased by the Dominicans.* Besides its badge, each pilgrimage had also its gathering cry, which the pilgrims shouted out, as at grey of morn they slowly crept through the town or hamlet where they had passed the night, and Pope Calixtus says,† that the Santiago pilgrims were accustomed, before dawn, at the top of each town, to cry with a loud voice, "Deus adjuva! Sancte Jacobi!" "God help! Santiago!"

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* 'Medii Ævi Kalendarium,' &c., by R. J. Hampson, vol. ii. bk. ii. p. 329.

† 'On Pilgrims' Signs and Tokens,' by C. Roach Smith. See note, 'Archæological Journal,' vol. i. p. 202.

‡ See note, 'Pilgrims of the Middle Ages,' vol. vii. p. 308, 'Art Journal,' 1861, by the Rev. E. L. Cutts.

It is stated that pilgrims used to present their scrips and bourdons to their parish churches, and Coryatt saw cockle, mussel-shells, beads, and other religious relics, hung up over the door of a little chapel in a nunnery. These were deposits and offerings made by pilgrims to Compostella, when they returned and gave thanks.‡

The Rev. E. L. Cutts states that shells have not unfrequently been found in stone coffins, and are supposed to be relics of the pilgrimage once taken by the deceased to Compostella; and that when the grave of Bishop Mayhew, who died in 1516, was opened some years ago, in Hereford Cathedral, a common rough hazel-wand, between four and five feet long, and as thick as a man's finger, was found lying by his side, and with it a few mussel and oyster shells.

St. James of Compostella is said to have performed many miracles, and to have appeared no less than fifteen times to the Spanish kings and princes, when some great advantage always ensued; for instance, one day he put himself at the head of the troops of a king of Spain, Ramira, king of Leon, and leading them against the Moors, mounted on a white horse, the housings charged with escallops, defeated those infidels. St. James supported his people, by taking part in their battles, down to a very late period, as Caro de Torres mentions two engagements in which he cheered on the squadrons of "Cortes" and "Pizarro" "with his sword flashing lightning in the eyes of the Indians."* The great Spanish military order of "Santiago de la Espada" is supposed to have been instituted in memory of the celebrated battle of Clavijo, the peculiar badge of which order is a red cross, like a sword, charged with a white scallop shell, and the motto "Rubet ensis sanguine Arabum."† To this day you are told in Spain, that the scallops found at Clavijo, were dropped there by St. James, or Santiago, when he assisted the Spaniards to kill 60,000 Moors in the year 997, and they are considered visible proofs for those who doubt the miracles of this saint.

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* Fosbroke's 'British Monachism,' p. 469.

† 'Sermones Bib. Pat.' ed. Bignis xv. 330; 'Pilgrims of the Middle Ages' (note).

‡ Fosbroke's 'British Monachism.'

Other orders of knighthood used the scallop shell as an ornament, viz., that of St. James of Holland, the badge and collar being formed of escallops. It was instituted in 1290 by Florian II., Comte de Hollande, but it was abolished with the Roman Catholic Religion.‡ Louis IX. of France, or St. Louis, as he was generally called, instituted an order of knighthood, called the "Ship and Escallop Shell," to induce the French nobility to accompany him in his pilgrimage to the Holy Land; but it did not long survive its foundation.§ He quitted

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* 'Ordenes Militares,' fol. 5. Note, Prescott's 'Ferdinand and Isabella,' vol. i. p. 274.

† 'Heraldry of Fish.'

‡ 'Collection Historique de la Chevallerie,' par A. M. Perrot.

§ 'Heraldry of Fish.'

Paris the 12th June, 1248, to embark at Aigues-Mortes, in Languedoc, a town which he had founded that he might have a seaport on the Mediterranean. He also embarked at that place on his unsuccessful crusade in 1270, having assembled a fleet of 800 galleys, and an army of 40,000 men.

Louis XI. of France, about 1469, instituted the order of knighthood and honour of St. Michael, which, in England, at least, was distinguished by the name of "Order of the Cockle," (the common name in olden times for the escallop of pilgrims being the *cockle*). The robes were ornamented with a profusion of escallop shells. Strutt gives the following description, from a manuscript inventory, of the robes at Windsor Castle in the reign of Henry VII. : "A mantell of cloth of silver lined with white satten, with escallop shells. Item, a hoode of crymsin velvet, embraudered with escallop shelles, lined with crymson satten" ('Horda Angel-cynnan,' vol. iii, p. 79).*

In 1566, Charles IX. of France sent an ambassador, Monsieur Rambullet, with the order of the "cockle," to the king consort, Lord Darnley, who received the same in the chapel of the palace of Holyrood.†

The following description of the apostle St. James, patron of Spain, given by Bernard Picart, may not be uninteresting to some of my readers. He says St. James, patron of all Spain, has rested for these 900 years past in the Metropolitan Church of Compostella. The image of this blessed apostle is upon the high altar; it is a small wooden bust, with forty or fifty white tapers constantly burning before it. Pilgrims kiss it three times, and put their hats upon the head of it, with abundance of respect and devotion. There are thirty silver lamps always burning in the church, and six large silver candlesticks five feet high, which were given by Philip III. There are five platforms of large freestones, for walking all round the church, and above it is another of the same kind, where the pilgrims ascend and fix some remnant of their clothes to a stone cross, which is erected thereon. They likewise perform another ceremony as singular as this. They pass under this cross three times, through such a small hole that they are obliged to slide through with their breasts against the pavement, so that such as are never so little too fat must suffer severely, and yet through they must go if they will obtain the indulgence thereto affixed. This is the strait gate of the gospel, through which the pilgrims enter into the high-road of salvation. Some who had forgotten to pass under the stone cross have gone back five hundred leagues to perform this ceremony.* Mr. Street, in his 'Gothic Architecture in Spain,' states that even in that country, the old belief of the power of the bones of St. James of Compostella to work miracles appear now practically to have died out, and that there are no longer great pilgrimages to his shrine. However, at Santiago de Compostella, he saw *one professional* pilgrim with his rags covered with scallop shells, whom he had previously seen begging at Zaragoza; and in one of the Plazas at Santiago an old woman was selling scallop shells. The doors in Toledo are studded with many and fanciful forms of door-nails, of very quaint and beautiful shapes, and, occasionally, they have reference to the object or history of the building; for instance, any building in any way connected with Santiago has the nails in the form of scallop shells.* The custom of bearing scallop shells as a badge of pilgrimage, is more widely spread than is usually supposed, for Sir Rutherford Alcock mentions their use on the sleeves of many of the Japanese pilgrims to the Cone of Fusiyama, in the island of Japan. In China, the valves of *Pecten Japonicus* are used as small shovels.

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* 'Medii Ævi Kalendarium,' by R. T. Hampson, vol. i. bk. ii. pp. 356, 357.

† 'History of the Reformation of Religion in Scotland,' by John Knox.

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* 'Religious Ceremonies,' by Picart, p. 432.

Shells were used by the Romans to ornament their dwellings, and the "Fountain of Shells," described in Sir William Gell's 'Pompeiana,' was decorated with the Tyrian murex and the scallop. Mr. Damon tells us that there is still standing, in a villa at Pompeii, a fountain decorated with the shells of the Mediterranean, one species of which, viz., *Murex Brandaris*, retains its colour and general freshness, and is not to be distinguished from living examples. In an interesting paper on a 'Collection of recent shells discovered among the ruins of Pompeii, and preserved in the Museo Borbonico at Naples,' published in the 'Geological Magazine,' vol iv. No. 7, July, 1867, Mr. Damon calls our attention to the following, and says, that "Among the many singular discoveries made in the ruins of Pompeii, and deposited in the Museo Borbonico, in the city of Naples, are a variety of shells, principally species now found in the Mediterranean Sea, amongst them *Pecten Jacobæus*, and so far of interest as an illustration of the persistency of certain known species within the historic period, no difference whatever being observable between the disinterred, and living specimens. On a close examination I observed, besides those from the neighbouring seas, species from distant countries, for example, *Conus textiles*, *Triton femorale*, *Meleagrina margaritifera* (Pearl-Oyster), species only found in the Indian and Eastern Seas. I think, therefore, that this may be regarded as part of a Natural History collection. Assuming the truth of this conjecture, its antiquity is without precedent. Did the original proprietor form one of a Natural History Society at Pompeii, of which the distinguished Naturalist, Pliny, who perished at Pompeii, was a member? It would also be curious, in these days of research for priority of names, to know how they were described. Such a discovery might disturb existing nomenclature, and increase the perplexity already felt in naming collections. But laying aside fanciful conjectures, the collection is further instructive from the condition and perfect preservation in which the specimens are found, after an interment of nearly 1800 years."

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* 'A Summer in Spain,' by Mrs. Ramsey, p. 102.

The scallop is figured on the coins of Saguntum, which are of Phœnician time, the dolphin being on one side, with the letters S.A.G.W. under, and the scallop on the reverse; and Florez, in his 'Medallas de España,' Parte 2, 1728, says of these coins, "These (the dolphin and the scallop shell) allude to Neptune and Venus, for as the dolphin is sacred to Neptune, so is the shell to Venus,* as the daughter of the sea, and also for the pearls it engenders, applied to the adornment of women. This shell is most appropriate for the impress of a maritime city, from the utility enclosed within it, and its application to diverse uses, either from its seed for jewels, or as a delicacy for the table, for the precious tints with which it is coloured, for its use as a medicine, and for ostentation in virtue of its ornamental pearls."

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* 'Faveas concha Cypria vecta tua,' Tibullus, lib. iii. El. 3, &c.

Real scallop shells are used in the baptismal service for pouring water over the child, though the shell is usually of silver gilt, and in private baptism a wooden shell is frequently adopted. "Baptismal shells," are mentioned in a list of the ornaments of the church in the fifteenth century, and they are still used in some churches.

The following are a few recipes for cooking the scallop :—

To dress Scallops.—Wash them six or seven times in clean water, then set them on the fire to stew in their own liquor ; take the fish and beard them very clean, let the liquor settle, and strain it off, and take warm milk, and wash the fish very well ; then take the liquor, some good gravy, and crumbs of bread ; set it on the fire, and when the bread is a little stewed, take a quarter of a pound of butter, and roll it in fine flour to thicken it ; then take an anchovy, a little mace and nutmeg ; put in your fish and boil it half a dozen times, and serve it up." *

"*To stew Scallops*—Boil them very well in salt and water ; then take them out and stew them in a little of their own liquor, a glass of white wine, and a little vinegar ; add some grated bread-crumbs, and the yolks of two or three hard eggs minced small ; stew all together till they are sufficiently done ; then add a large spoonful of essence of anchovy, and a good piece of butter rolled in flour ; or stew very gradually in a rich white sauce, with thick cream, until quite hot, without being allowed to boil, and serve with sippets." *

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* From an old MS. Book.—C. C. W.

"*To cook Scallops.*—Clean them from the shell; take off the beards, as also the black marks they bear; then cut them into four pieces. Fry some bread-crumbs with butter, pepper, and salt, to a light brown colour; then throw in your scallops, and fry all together for about three minutes and a half, taking care to shake the frying-pan, all the time. Last of all, press them tight into shells or a dish, and brown them with a salamander, and send them to table."†

"*Pickled Scallops.*—One gallon of scallops drained from the liquor; put them into a bowl of salt and water, take immediately out; measure the liquor and take as much vinegar as liquor; a tablespoonful of peppercorns, one of cloves, one of salt, a small teaspoonful of mace, boil them about three minutes, pour on the liquor after it has boiled five minutes; cover, and let stand."‡

"*Scallops.—American Recipe.*—The heart is the only part used. If you buy them in the shell, boil and take out the hearts. Those sold in the markets are generally ready for frying or stewing. Dip them in beaten egg, then in cracker-crumbs (or bread-crumbs), and fry in hot lard."§

PECTEN OPERCULARIS, Linnæus. *Lid Scallop.*—Shell spherical; valves convex, of nearly equal dimensions, rather strong; ribs, eighteen or twenty in number, finely striated, both longitudinally and transversely; auricles nearly the same size; ligament internal; hinge without teeth.

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* Murray's 'Modern Cookery Book.'

† 'A Man Cook.' See 'Field,' Feb. 20, 1864.

‡ 'Every Day's Needs.'

§ 'Common Sense in the Household,' by Marion Harland.

This is the common scallop of the people, and much smaller than the "Great scallop," also subject to greater variety of colour. Specimens are found quite white, with a dark red line on the summit of each of the radiated ribs (var. *lineatus*), also brown, yellow, speckled white and brown, purplish-pink, and orange. The specimen figured was dredged up off the Parson and Clerk rocks at Dawlish, and at times there may be gathered basketfuls on the beach between that town, and the mouth of the Exe. The shells are much used in ornamental work; and pretty baskets, pincushions, needle-books, &c., are made from the beautiful variegated valves.

The scallop may be called the butterfly of the ocean, from its power of swimming or flying rapidly through the water. This was observed by Pliny, who says that the scallop is able to dart above the surface of the water, just like an arrow.* By some this power is supposed to be caused by the rapid opening and shutting of the valves, but Mr. Gosse states that, after carefully watching the habits of a Pecten, which he kept for some days in a glass phial of sea-water, he discovered that the flitting motion was performed by forcing jets of water through the compressed edges of the mantle. He says, "When the Pecten is about to leap, it draws in as much water as it can contain within the mantle, while the lips are held firmly in contact. At this instant the united edges of the lips are slightly drawn inward; and this action gives sure warning of the coming leap. The moment after this is observed, the animal, doubtless by muscular contraction, exerts a strong force upon the contained water, while it relaxes the forced contact of the lips at any point of the circumference, according to its pleasure. The result is, the forcible ejection of a jet of water *from that point*, which, by the resilience of its impact upon the surrounding fluid, throws the animal in the *opposite direction*, with a force proportioned to that of the *jet d'eau*." Again, Mr. Gosse adds, "That the Pecten widely opens and forcibly closes its valves if left *uncovered by the water*, is, doubtless, correct. I have seen my specimen perform such an action, and perhaps it might by such means jerk itself from place to place, with considerable agility. But I do not think so rude a mode of progression could enable it to select the direction of its leaps, which, under water, appears to me to be determined with so much precision."*

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* Pliny, 'Nat. Hist.' vol. ii. bk. ix. ch. 45 (29).

Scallops are found pretty generally distributed in all seas, and are much sought after for food. At Weymouth, the average produce of the trawlers is five bushels of scallops per week. They have been sold at two-pence per hundred, 700 going to the bushel;† but they appear to have become scarcer lately, if one may judge by the price at which they are now sold, viz., four-pence a dozen, and two-pence per dozen for the shells, without the fish, for making shell ornaments. The fishermen suppose that they are taken in the greatest numbers after a fall of snow. In Cornwall they are called *Frills*, or *Queens;* on the Dorset coast, *Squinns*, and in the north of France,

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* 'Devonshire Coast,' by P. H. Gosse, pp. 50, 52.

† 'A Year at the Shore,' by P. H. Gosse, p. 25.

Vanneau, or *Olivette*;[*] and in the south of Ireland the peasantry call them *Closheens*. The Spanish names for *Pecten opercularis* are *Volandeiras*, *Xels*, or *Xelets*. *Pecten varius* is sent in quantities from the department of Charente Inférieure to the markets at Bordeaux, and is there called *la Petite palourde*,[†] and in the north of France *Petite vanne*; and, according to Poli, it is the *Pellerinella* of the Neapolitans, and the *Canestrelli di mare* of the Venetians. In Spain it has many names, viz., *Zamoriñas*, *Zamburiñas*, *Andorriñas*, *Golondrinas*, and *Romera*, and is used as food, and I have seen quantities in the market at Palma, Majorca.

To fry Scallops.—Wash the shells well in clean water, then put them into a saucepan over a slow fire until they are open; then take out the fish, take off the beards, and place them on a dish, covering them well with bread-crumbs or flour, and add a little pepper. Then put some oil, lard, or butter into a frying-pan, and when it begins to boil, put in the scallops, and fry them till they are well browned. Shake the frying-pan occasionally, to prevent their mixing together.

Soyer, in his 'Ménagère,' gives the following recipe: "Escallop is exceedingly fine; it should be kept in salt and water some time, to free it from sand. When opened, remove all the beard, and use only the white, red, and black parts. It may be cooked like oysters, and is excellent with matelote sauce."

In Francatelli's 'Cook's Guide,' is a recipe for oyster soup; but he adds that a good soup may be made in the same manner, substituting scallops, instead of oysters, and I shall therefore give it.

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[*] 'British Conchology,' vol. ii. p. 60.

[†] 'Faune Conchyliologique Marine,' par le Docteur Paul Fischer.

"*Oyster Soup* (*Scallop Soup*, No. 183).—Scald, drain, wash, and beard four dozen oysters (or scallops), reserving their liquor in a pan. Put four ounces of butter into a stew-pan, to barely dissolve over the fire; mix in four ounces of flour; moisten with a pint and a half of good white stock, or milk; season with nutmeg, a pinch of cayenne, and a teaspoonful of anchovy; add half a pint of cream; stir over the fire for a quarter of an hour's gentle boiling, and then, having cut the oysters (or scallops), each into halves, pour the hot soup over them in the tureen."

"*To cook Scallops,* or '*Leitrigens,*' *Donegal fashion.*—Place them on a gridiron in the shells, with a piece of lighted turf-coal placed on the upper shell; when cooked, eat them with butter and pepper."

Gwillim, in his 'Heraldry,' says that (according to Dioscorides) the scallop is "engendered of the dew and the air, and hath no blood at all in itself; notwithstanding in man's body (of any other food) it turneth soonest into blood," and adds, "the eating of this fish raw is said to cure surfeit."

FAM. OSTREADÆ.

OSTREA.—OYSTER.

OSTREA EDULIS, Linnæus. *Edible Oyster.*—Shell nearly round, though variously shaped, inequivalve; the upper valve flat, or nearly so, with scales or laminæ of a yellowish-brown; the lower valve convex, and foliaceous, of a pale pinkish-white, with streaks of purplish-pink; transversely striated. Hinge toothless; ligament internal, of an olivaceous-brown; beaks small. The interior of the shell white and polished, sometimes *the purplish-pink colour of the margins showing through.*

The edible oyster of Great Britain is supposed to be superior to those of other European countries, and to attain to a greater degree of perfection on our coasts; and it was much valued by the Romans, who transplanted numbers from our shores, and placed them in artificial beds in the Lucrine Lake. Sergius Orata is said to have first invented the artificial oyster-beds, "not for the gratification of gluttony, but of avarice, as he contrived to make a large income by this exercise of his ingenuity."* M. Dabry de Thersant in a number of the 'China Review,' as quoted in the 'Flight of the Lapwing,' states, that artificial oyster-beds were formed in China long before they are known to have existed amongst the Romans, and, while in Europe essays and pamphlets are being written on the theory of the subject, the practical Chinese have been obtaining good results for the last 1800 years, notwithstanding the fact that they have no clear ideas as to the nature of the oyster or its means of reproduction.

Apicius first discovered the art of preserving *oysters fresh* for a considerable time, and sent some from Italy to the Emperor Trajan, while he was on an expedition against the Parthians, which were found on their arrival to be as good as on the day they were gathered.† This mode may possibly have been the same as that which is practised in Italy at the present day, where, as Poli tells us, they are carried from Tarentum to Naples, in bags, tightly packed with snow, which not only by its coolness preserves them, but also, by preventing them from opening their bivalves, enables them to retain in the shells sufficient moisture to preserve their lives for a long period.*

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* Pliny, 'Nat. Hist.' vol. ii. bk. ix. chap. 79.

† Daniel's 'Rural Sports,' vol. iv. p. 194.

There were other places from whence oysters were procured, and Mucianus speaks with rapture of those found at Cyzicus, a town in Asia Minor,† on the shores of the Sea of Marmora, the ruins now called by the Turks, Bal Kiz. He describes them as larger than those of Lake Lucrinus; fresher than those of the British coasts; sweeter than those of Medulæ (the district in the vicinity of Bordeaux, now called Medoc); more tasty than those of Ephesus; more plump than those of Lucus; less slimy than those of Coryphas (a town of Mysia, opposite Lesbos); more delicate than those of Istria, and whiter than those of Circeii (a town of Latium). Pliny mentions that according to the historians of Alexander's expedition, oysters were found in the Indian Sea a foot in diameter,‡ and Sir James E. Tennent unexpectedly attested the correctness of this statement, as at Kottiar, near Trincomalee, enormous specimens of the edible oysters were brought to the rest-house. One shell measured more than eleven inches in length, by half as many broad.§

The Greeks preferred the oysters of Abydos, and Archestratus, in his 'Gastronomy,' says:—

> "Ænus has mussels fine; Abydus too
> Is famous for its oysters; Parium produces

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* Poli, 'Testacea Utriusque Siciliæ.'

† Pliny, 'Nat. Hist.' vol. vi. bk. xxxii. ch. 21.

‡ Ibid.

§ See note, 'Nat. Hist. of Ceylon,' p. 371.

> Crabs, the bears of the sea, and Mitylene periwinkles;
> Ambracia in all kinds of fish abounds,
> And the boar-fish sends forth; and in its narrow strait
> Messene cherishes the largest cockles.
> In Ephesus you shall catch chemæ, which are not bad,
> And Chalcedon will give you oysters."*

Mr. Sharon Turner, in his 'History of the Anglo-Saxons from the Earliest Period to the Norman Conquest,' tells us that in the dialogues composed by Elfric to instruct the Anglo-Saxon youths in the Latin language, which are yet preserved to us in the MSS. in the Cotton Library, there is some curious information concerning the manners and trade of our ancestors. In one colloquy the fisherman is asked, "What do you take in the sea?"—"Herrings, and salmons, porpoises, sturgeons, *oysters*, and crabs, muscles, winkles, cockles, flounders, plaice, lobsters, and such like."

Great Britain is still celebrated for its oysters, and large artificial beds are formed for the better rearing and breeding of these shell-fish, besides the natural oyster-beds which are found on many parts of our coasts. The artificial beds require much labour to keep them in order, and free from shells and rubbish. The mussel is an enemy to the oyster, as I have already observed, as it causes mud to collect; and the star-fish and whelk feed upon them, as do crabs, shrimps, and other shell-fishes. Dr. Paul Fischer states that the oyster-beds at Arcachon have suffered considerably from the havoc caused by *Murex erinaceus*, which has appeared in great numbers within the last few years; and it has been suggested by the Commissaire de l'Inscription Maritime, at Ile d'Oleron, that when laying down a fresh supply of young oysters on the beds, a certain quantity should be provided for their enemies to feed upon, and thus save the others.* Incessant war is waged against the dog-whelk, but the numbers do not decrease. It is known by the name of *Cormaillot*, or *Perceur*. Again, cold weather has a most pernicious effect upon the *spat*, for if the water is not warm enough the spat dies. Oysters will not even spawn if the weather is too cold. Some of our principal beds are those of Whitstable, Rochester, Colchester, Milton, Faversham, Queenborough, and Burnham. Colchester has been celebrated for its oysters from a remote period, and they were deemed an appropriate present from the authorities of the town to ministers of state, and other eminent persons. We hear of their having been sent, in the reign of Queen Elizabeth, to Leicester and Walsingham.† At the annual Colchester Oyster Feast, held in the Town-hall, October, 1862, Mr. Miller, M.P., mentioned that Mr. Goody, clerk to the Colne Fishery Company, with himself and a few other gentlemen, had appealed to the Treasury, because it was apprehended that Belgium, to which a large number of oysters are sent, was about to impose a duty which would inflict a serious injury upon the town. However, it was found from the interview that there was no immediate prospect of the anticipated danger, and a treaty was concluded with Belgium, in which a special reservation had been made in respect to oysters.‡ The oysters sent to Belgium are fattened in the Ostend beds, and then called "Ostend oysters." They are very plump and small, and were at one time highly thought of by the oyster-eaters in Paris; but I believe that they have nearly disappeared from the Parisian markets (except the green-bearded oysters, such as are found in the River Crouch, which are all sent to Paris, and known there as *Les huîtres verts d'Ostend*),* and are now sent to Berlin, St. Petersburg, and Moscow.† Their flavour is certainly quite equal to our "natives," at least I thought so, and the shells appeared thinner. Oysters, mussels, and periwinkles, with shrimps, are the fisheries which engage a good number of fishermen at Leigh, near Southend. The Leigh shore has been found particularly well adapted to grow and fatten oysters.‡

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* Athenæus 'Deipnosophists,' vol. i. bk. iii. p. 154.

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* 'Report on Oyster Fisheries of France,' by Major Hayes, 1878.

† Cromwell's 'History of Colchester,' vol. ii.

‡ The 'Times,' October, 1862.

Whitstable was a fishing-town of note in the reign of Henry VIII., and was called in ancient records "Northwood." Leland, in his 'Itinerary,' thus describes it:—"Whitstable is upward junto Kent, a ii miles or more beyond Faversham, on the same shore, a great fisher-towne of one paroche, belonging to Plaze College, in Essex, and yt standeth on the se-shore. Ther about they dragge for oysters."

The dredgers of Whitstable do not trust entirely to the natural resources of their oyster-beds, but purchase from the Essex coast what is called the *brood*, which is the *spat* in its second stage. They also purchase oysters from Ireland, France, and Holland, and lay them down on the Whitstable beds. The following interesting account of the Whitstable beds appeared in 'Macmillan's Magazine,' No. 36, October, 1862:—"The brood is carefully laid down in the oyster-beds off Whitstable, and allowed to grow for three, perhaps four years. The oysters in different stages are marked off by means of long poles, so that the shell-fish farm is divided into separate fields, each being in a particular stage of growth. At the time when the oysters are lifted for the London or other markets, they are measured by being thrown against a wire grating, and all those under a certain size are thrown again into the water. To give an idea of the business done in the oyster trade, it may be stated that in 1860 the Whitstable men took as much as £50,000, for native oysters alone, which, after deducting the cost of the brood, would still leave a handsome profit." There are extensive fisheries opposite Milton, those of the Cheney Rock. We are told that in a single season, more than 50,000 bushels of "natives" were sent from this one fishery to London.* Mr. Frank Buckland defined a "native" as being a thoroughbred oyster, and its geographical limits would be at and about the mouth of the Thames, from Harwich on the north, down to Margate on the south, and it is indigenous to the soil, in contradistinction to the Irish, Milford, and other oysters, which come from different parts of the world.†

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* 'Report on Oyster Fisheries,' 1876.

† "L'Alimentation de Paris," "Les Halles Centrales," 'Revue des Deux Mondes,' 15 Juin, 1868, tome soixante-quinzième.

‡ 'Visits to the Sea-coast; the Shipwrecked Mariner,' vol. xii.

The "Milton natives" bear the bell, or may be said to be the pearls among British oysters. King John granted these fisheries to the Abbot of Faversham, in whose hands they remained till the dissolution, and they have been dredged from the earliest times by a company of fishermen, ruled, like those of Faversham, by certain ancient customs and bye-laws.*

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* Murray's 'Handbook, Kent and Sussex,' p. 64.

† 'Report on Oyster Fisheries,' 1876.

Jersey oysters are brought over and bedded in the Southampton water. They are described as being small, but of superior flavour, and are conveyed long distances to be laid down, naturalized, and afterwards sold as natives. They are also remarkable for their saline flavour when first brought over, but it goes off after they have been bedded some time at Southampton.† In 1876 Jersey oysters were very scarce, and the beds in a bad condition. It is said that formerly there were fine oyster-beds between Portsmouth, Hayling, and the Isle of Wight; and recently a breeding place on the French system has been established at Hayling Island, and there is considerable trade carried on in oysters.

There are extensive oyster-beds in the Medina and Newtown rivers, in the Isle of Wight, and a large quantity were bred in 1880, and were in good condition up to 1881.‡ The manor of Osborne is said to derive its old name of Austerbourne, or Oysterbourne, from the oyster-beds of the Medina.§ A bed of oysters was discovered off Eastbourne, some years since, the fish being of a very superior and delicate flavour. The price was 1*s.* per hundred, but it rose to 2*s.*; and another large bed, which was valued at £5000, was found about three miles off the mouth of Dartmouth harbour, about the same time.

We read, in Britton's 'History of Dorset,' that there was an oyster-fishery in Poole Bay, and that though the town of Poole claimed much dominion in this bay, the Lord of Corfe Castle had a power and jurisdiction, as Admiral by Water and Land, on the seas round the Isle of Purbeck, on the high seas, and throughout the whole island, in pursuance of a grant by Queen Elizabeth to Sir Christopher Hatton. The fishermen of Wareham, upon paying a small fine to the Lord of Corfe Castle, have a right also to fish in these waters. A considerable oyster-fishery was carried on at Poole, which supplied the London markets for two months every season, and no less than forty sloops and boats were employed, during which time the receipts were between £6000 and £7000. The last day's catching, by a prescriptive regulation, was thrown into the channels in the harbour, where the oysters were left to fatten, and supply the town and neighbouring county during the winter. In digging a dock at Ham, opposite the harbour, in 1747, a large bed of oyster-shells was found, six feet and a half thick, regularly piled up. This bed had been formed by the fishermen, who deposited the shells after they had taken out the fish for pickling, &c., without breaking the ligatures; this was the custom in the 17th century, which in 1640 and 1670, induced the Corporation (who imagined that such encumbrances might injure the channel) to cause the fishermen to open their oysters in the boats, and throw the shells on the strand, by which that hill of shells was raised, which at high water is surrounded by the sea, and called "Oyster bank."*

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* Murray's 'Handbook, Kent and Sussex.'

† 'Field,' Note by the Editor.

‡ 'Oyster Culture and Oyster Fisheries,' by Professor Hubrecht.

§ 'A Guide to the Isle of Wight,' by the Rev. Edward Venables, M.A.

The late Duke of Northumberland introduced oyster cultivation on the Northumbrian coast. They were imported and established there, and in the year 1865 the fisheries were allowed to commence, when they were found to have succeeded admirably, but since then the sand has destroyed the oysters. Messrs. Forbes and Hanley state that since the introduction of steamboats and railroads, considerable quantities of sea-oysters are brought from Falmouth and Helford, in Cornwall, also from Scotland and Ireland; the Irish oysters coming mostly from Carlingford, Malahide, Lissadell, Burran, Arklow, and Wexford; but the 'Report of the Irish Fishery Commissioners,' in 1874, gave a most unsatisfactory account of many of these fisheries; and it is said that the Carlingford beds, once so productive, are nearly dredged out, and in 1876 the take did not exceed a few thousands. The Wexford and Tralee beds were in the same condition, from over dredging and a succession of bad spatting years. It is not lawful to sell oysters in Ireland in the months of May, June, and July. The Wexford men dredged for them, of course, in the other months, but one reason of the beds being badly stocked was, that in the closed months they were regularly dredged by Beaumaris boats, which replenished their own exhausted beds with them; and in 1863 a French lugger visited Wexford seven times, carrying off on each occasion a large quantity of oysters for "laying down" on the French coast.*

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* 'Topographical and Historical Description of the County of Dorset,' by John Britton, Esq., and Mr. E. W. Brayley, pp. 413, 414.

The amount of oysters taken on the principal natural oyster-beds in 1876, off Arklow, was 7520 barrels of 450 each, large and small, at prices from 18*s.* to 24*s.* 6*d.* per barrel. In 1875, 13,640 barrels were taken. The Burran Bank oysters are highly esteemed in Dublin, and are called "Burton Bindons." They are brought from Kilkerran and Rossmuck Bays, in Galway, and are laid down to fatten on the Red Bank Oyster-bed in Aughinish Bay. Formerly Mr. Burton Bindon was the possessor of these beds, but now Mr. Singleton has succeeded him, as we are informed by Mr. Buckland, who visited these and other oyster-beds on the west coast of Ireland, the east coast of England, and also those on the west coast of France.

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* 'Morning Post,' Aug. 29th, 1864.

There are oyster-beds in the Shannon, said in 1836 to yield a revenue of £1400; and formerly, a small bed in Cork harbour, of no great extent, but the oysters were large, and prized for stewing; however, I am told that the latter no longer exists. In Lough Swilly there are oyster-beds, but the oysters were getting very scarce in 1876, and it was proposed having what is called in Ireland, a jubilee, viz., closing the banks, or a portion of them, for two years, and preventing the picking or taking of small oysters.* Oysters are increasing in scarcity and dearness in Ireland and in England, and this may be traced in a measure to the increased demand, the railroads conveying the oysters into the country; and Mr. Farrer stated, in the evidence before the Committee on Oyster Fisheries, in 1876, that oyster cultivators had great difficulty in obtaining oysters to fatten, because they were taken into the manufacturing districts, where the people eat them though in bad condition; whereas they formerly had them brought to the beds in the Thames.

It is said that over-dredging has destroyed many of the oyster-beds, and doubtless this has been the case in places; but on some parts of the coast it is absolutely necessary to dredge during the summer, which is the close time, to keep the beds free from sand, weeds, and mud, which accumulate so much that the spat is injured; but the principal cause of the scarcity of the oysters may be attributed to the low temperature of the water during the spatting season; the last few summers having been cold, and the weather so changeable.

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* 'Report on Oyster Fisheries,' 1876; Mr. Blake's evidence.

Between London and Glamorganshire there is a large trade in pickled oysters, and we are told that seventy-two million oysters are annually consumed in London alone.*

In Scotland, the Cockenzie fishermen derive a good portion of their annual income from the oyster trade, and dredge for them at high and low tide. The crews of the boats keep up a wild and monotonous song (in which they believe there is much virtue) all the time they are dredging, and assert that it charms the oysters into the dredge.† The same authority further states, that as a class, the fishers of the Scottish coast are very superstitious. They do not like being numbered whilst standing or walking. It offends them very much to ask them whilst on their way to their boats, where they are going to-day. They consider it unlucky to see the impression of a very flat foot upon the sand, and they will not go to work, if in the morning, on leaving their houses, a pig should cross their path. An experimental steam fishing-vessel has been built at Cockenzie; she is a dandy cutter-rigged craft, forty tons burden, assisted with auxiliary screw steam power, for the purpose of dredging oysters during the winter months, and deep-sea trawling during the summer.

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* 'Journal of Society of Arts,' Aug. 24th, 1883.

† 'The Fisher Folk of the Scottish East Coast,' Macmillan's Magazine, October, 1862, No. 36.

The celebrated "Pandore" oysters are principally obtained from the neighbourhood of Prestonpans. The exclusive right to fish, dredge, and cultivate oysters and mussels, belongs to the barony of Prestongrange, extending as far as the shores of the barony and to the centre of the Forth. During the last century, and the earlier portion of this, the proprietors of the barony were able to maintain control over the fishermen, and to regulate the fishing. . . . . At that date a number of salt works existed along the shore, and the oysters taken near them were termed "Pandores," which in Edinburgh still designates the finest oysters.* According to Mr. Frank Buckland, the oysters on the west coast of Scotland have a very beautiful shell, quite different from those on the east coast of England, and the beard of the oyster is always black, and this is also the case with the Irish, American, and Lisbon oysters.

Among the 'Antient Cryes of London' we find the following:—

"We daily cryes about the streets may hear,
According to the season of the year;
Some Wellfleet oysters call, others do cry
Fine Shelsea cockles, or white mussels buy."†

Oysters are imported very largely from France; also from the Netherlands, from the Eastern Scheldt and the Zuyder Zee, and the latter are sold under the name of "Anglo-Dutch." Dr. Knapp tells us that not less than 800,000 tubs of oysters, each tub containing two English bushels, are annually procured from the Normandy coast for the English market and the Channel Islands, and large quantities are sent from Arcachon. The principal oyster fisheries on the French coast are those of Courseulles-sur-Mer, Les Sables d'Olonne, Marennes, and La Tremblade, which are used simply for rearing and fattening purposes; and those which may be regarded as places of reproduction, are Granville, Cancale, Auray, Vannes, Ile d'Oleron, and Arcachon.*

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* 'Report on Oyster Fisheries,' 1876. Letter in Appendix, by Edward Vale, factor for Sir G. G. Suttie.

† Kirby's 'Wonderful Museum,' vol. ii. p. 233.

An interesting paragraph appeared in the 'Times,' November 13th, 1862, on the cultivation of oysters on the western coast of France. It is as follows:—"M. Coste has just communicated a paper to the Academy of Sciences on the progress of his artificial oyster-beds. Several thousands of the inhabitants of the island of Ré have been for the last four years engaged in cleansing their muddy coast of the sediments which prevented oysters from congregating there, and as the work advances, the seed, wafted from Nieulle and other oyster localities, settles in the new beds, and, added to that transplanted, peoples the coast; so that 72,000,000 of oysters from one to four years old, and nearly all marketable, is the lowest average registered per annum by the local administration, representing at the rate of from 25 to 30 francs per thousand, which is the current price in the locality, a sum of about two millions of francs, the produce of an extremely limited surface. That the waves or currents carry the seed of oysters is a well-known fact, since the walls of sluices newly erected are often covered with them. In the island of Ré the existence of oyster-beds, however, no longer depends upon this contingency, they being now in a state of permanent self-reproduction. Again, in some localities it is sufficient to prepare the emerging banks for collection, to see them soon covered with seed; but in other places nothing would be obtained without transplanting proper subjects. The concession of emerging banks is anxiously applied for by the inhabitants of the coast,—the more so, as improvements in the working of this branch of trade are of daily occurrence. Thus, Dr. Kemmerer, of Ré, covers a number of tiles with a coating of a kind of mastic, brittle enough to enable him to detach the small oysters from it. When this coating is well covered with seed, he gets it off all in one piece, which he carries to the place where the seed is to grow. The same tile he coats a second time, and so on."

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* 'Report on the Principal Oyster Fisheries of France,' by Major Hayes, 1878.

In France, oysters having a green tint are considered great delicacies, and the art of greening oysters is carried to the greatest perfection on the coasts of Aunis, whence come the celebrated green oysters of Marennes. They receive their colour and peculiar flavour when transplanted to certain beds or *claires*, which, at the approach of winter, are lined with a kind of vegetation, which disappears in the spring; and the oysters are said to owe their colouring to the absorption of the chlorophyl with which the waters of the *claires* are saturated. It is a fact that the oyster assumes its green colour when the *claire* grows green, and loses its colour when the *claire* is deprived of its vegetation. Some have thought that the greening of the Marennes oysters was due to the essentially argillaceous soil of Marennes, to the brackish waters of the Seudre, or to oxide of iron; but at La Tremblade, where the greening process is also carried on, it is attributed as much to the action of fresh water as to the nature of the soil, and reeds grow on the edges of the *claires* which could not grow in salt water. The greening takes place in a few days. A fortnight is sufficient when the *claire* is in the humour. But the greatest care must be taken not to empty the *claire*, as it would be a long time before it became green again.*

Oysters are imported into Marennes for fattening and rearing from all parts of France, and the number in 1880-81, including Portuguese oysters, amounted to 130,000,000. In 1882, Marennes sent out 151,000,000 oysters, representing a value of 5,900,000 francs.† Some years since these Marennes oysters were so much in demand, that the white oyster-beds in the neigbourhood had become insufficient to stock these peculiar beds where the creature acquires the green colour and delicious taste which causes the Marennes oyster to be so eagerly sought after. White oysters had therefore to be imported from Spain, Brittany, Ireland, and England. A considerable quantity of oysters were at one time imported from Falmouth, and these contain copper, which imparts an acrid taste. They were generally, on their arrival, deposited in certain beds apart from the others, and there kept for six months, after which it was proved by experience that they lost their copper, salt, and bad flavour. A Marennes fisherman, whose trade was not very extensive, procured a few thousand oysters from Falmouth, and, out of thirst for gain, he sent them off to Rochefort, before they had sojourned more than three weeks in the beds set apart for their purification. These oysters caused alarming symptoms, and M. Cuzent, being called upon to test them, as they had been seized in the market at Rochefort, found copper in them, the quantity being about twenty-three centigrammes per dozen oysters.* I have elsewhere given an account of the finding of copper in the Falmouth oysters; one of the tests used by M. Cuzent was so very simple, that any one might discover the presence of copper. It is as follows:—An ordinary needle is thrust into the green part of the oyster, and then the mollusk was immersed in pure vinegar. When copper was present, thirty seconds sufficed to cover the portion of the needle embedded in the oyster with a red coating of copper.†

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* 'Oyster Culture in France,' Translation of Report, by M. G. Bouchon-Brandeley. Edward Stanhope, 1877.

† 'Translation of Report on Oyster Culture in France,' by M. Brocchi, Aug. 1st, 1882. T. H. Farrer.

The amount of shell-fish consumed in Paris annually, including lobsters, crayfish, oysters, &c., is immense. In 1867, the consumption of oysters in Paris was 26,750,775, of which the greater portion came from Courseulles-sur-Mer, and from Saint Vaast-de-la-Hougue.‡ In the 'Revue des Deux Mondes,' Janvier 1er, 1884, it is stated that the consumption of oysters in Paris alone was 2,000,000.

Oysters are not packed in barrels, as with us, but at the restaurants and in the wine-shops are seen very shallow baskets, in shape resembling a small shield, with a thatching or wall of straw on either side, rising to the height of a foot or a foot and a half, tied with string at both ends and across the centre. These baskets contain a hundred or more oysters, according to their size.

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* 'Galignani's Messenger.'

† 'Field,' March 14th, 1868.

‡ 'Revue des Deux Mondes,' "L'Alimentation de Paris," tome lxxv. 15 Juin, 1868.

There is another species of oyster largely cultivated in the French oyster-beds, which I have already mentioned, viz., *Ostrea angulata* (the *Gryphœa angulata*, of Lamarck), the Tagus oyster, and quantities are consumed in England, where they are known by the name of Anglo-Portuguese. Its introduction and acclimatization in France are due to an accidental case.* A vessel bound from Portugal was laden with a cargo of this oyster. Having entered the Gironde, after a long passage, the captain, believing the oysters dead, threw the cargo overboard, upon an old oyster-bed named the Richard bed. Having found in the Gironde a soil nearly identical with that which they came from, and conditions favourable to their propagation, the oysters multiplied in such proportions that from the Pointe de Grave to the above Richard bed, an extent of thirty kilomètres, they form one vast bed.

The taste and flavour are very different to that of our native oysters. It delights in muddy and brackish waters, and is suitable for sending long distances, as the lower valve is deep and holds much water. M. Paul Fischer says that it belongs essentially to the Littoral Zone, and is uncovered at each tide, and everywhere distributed where limpets are found.† The first importation of *Ostrea angulata* to the Arcachon beds from Lisbon was in 1866.

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* 'Oyster Culture in France,' Translation of Report, by M. Bouchon-Brandeley, 1883.

† 'Journal de Conchyliologie,' 3mè Serie, tome xx. No. 1, 1880.

In the Bay of Cadiz *Ostrea Virginica* (or *Ostrea angulata?*) is eaten when very small, but the poor people eat it full-size, viz., ten inches long. This species lives in the salt mud of the Guadalete, and is called *Ostione;* other oysters are called *Ostrea* or *Ostrias,* and *Ostrea edulis* is known by the name of *Ostia blanca.* The river is said to be salt three leagues from its mouth.

A Frenchman at Puerto St. Maria tried the experiment of breeding oysters for the Madrid market, but they were slimy, and not to be compared with the English oysters, though they were said to be good when cooked; and Major Byng Hall stated that at Madrid, oysters—not fine ones—cost twopence-halfpenny (that is, I suppose, one real) each; but this is not very remarkable, for in 1865 natives cost twopence, and Whitstable oysters three-halfpence each in London, the very land of oysters, so scarce had the mollusks become.

Ostrea edulis is found in abundance in the Gulfs of Trieste and of Venice. *Ostreo-culture* is carried on in a most primitive manner by the fishermen of Monfalcone, Duino, Zaole, &c. They drive piles, or rather oak branches, into the bed of the sea, in one and a half to two fathoms of water, in the spring, and in the autumn, when the spat has settled on them, they are transferred into deep waters, there to await their development after the third season. In Dalmatia the branches of oak are merely thrown into the water, and there allowed to remain until the oysters mature and fall off.*

The Tarentines declare that oysters are fattest during the full moon, and they are also fully persuaded that the moon-beams have a pernicious effect upon sea-fish, therefore they cover over fish taken by moonlight, lest they should decompose. The Italian name for the oyster is *Ostrica.*

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* 'The Fisheries of the Adriatic,' by G. L. Faber.

Experiments have been tried, both on the French and English coasts, to acclimatize the large American oyster, *Ostrea Virginica,* or *Ostrea Virginiana,* but they did not succeed, and although when the weather was warm they seemed to fatten and grow, still they would not spawn or spat. Large quantities of American oysters are sent over to Liverpool, and other parts of England, and are sold at a moderate price—from 1*s.* to 1*s.* 6*d.* a dozen was the cost of them in 1876. In 1879, 90,663 barrels of oysters were shipped to England from New York, and its neighbourhood, at a total value of £90,661.

Mr. Nichols, in his 'Forty Years in America,' tells us that oysters are never out of season in New York. They are brought from the shores of Virginia, and planted to grow and fatten; so that every quality and flavour can be produced by the varying situations of the banks, and the time of planting and the depth of water regulates the season of the oyster, and keeps the market in constant supply. There is a celebrated restaurant for oysters in New York, No. 783, Sixth Avenue, and the late proprietor, Mr. Robert Burns, informed Mr. Marshall, in November, 1879, that he had then in stock about fifty thousand, and in holiday time he kept from four to five thousand oysters. The shells of one of the large Cow Bay oysters measured 10½ inches in length, and averaged 4½ inches in width, and the fish inside averaged 6 inches by 4 inches. Mr. Marshall was shown 15,000 of these monsters stored away in bins in a cellar under the house. Sometimes even larger specimens are to be met with. Cow Bay is an inlet of Long

Island Sound about fifty miles above New York.* From information received in 1883, kindly given by the manager of the restaurant, which is now carried on by a son of Mr. R. Burns, it appears that since 1879 the business has been doubled, and double the amount of oysters consumed.

It is not only in seaport towns in America that oysters are eaten in enormous quantities, but towns a thousand miles inland are well supplied, and oyster suppers are as common in Cincinnati or St. Louis as in New York or Baltimore. It was stated by Mr. Consul Rainall, in 1869, that eight millions of bushels of oysters are annually landed at Baltimore for home consumption and packing, and as many more to other places. Baltimore is the largest oyster-market in the world. The average consumption for seven months in the year is 35,000 bushels per day. One firm alone from October 1st till June 1st, averages 4000 bushels a day, packing from 16,000 to 25,000 cans daily, hermetically sealed, containing 1lb. and 2lbs. of oysters.†

In the 'Report of the Commissioners of Fisheries in Maryland, January, 1880,' is the following account of the oyster-fisheries in Chesapeake Bay, given by Mr. W. H. Brooks:—"The town of Crisfield, Maryland, is situated at the junction of the two sounds of Pokamoke and Tangier, two large and wide but shallow sheets of water, whose muddy bottoms abound in oysters of the best quality. The town is one of the most important centres of the oyster-packing industry, and is built in the water upon the shells of the oysters which have been shipped to all parts of the country for consumption. As fast as the oysters are opened the shells are used to build up new land, and with them a large peninsula has been formed, stretching out for more than half a mile from the low marshy shore towards the oyster-beds, and furnishing room for wide streets, a railroad, and a steamboat landing, in addition to the large packing-houses, and the shops and dwellings for a population of several thousand people. A single view of the long white solid streets and docks of this singular town would convey a much more vivid idea of the oyster-packing industry than any number of tables of statistics. At some future period this enormous accumulation of oyster-shells will be considered as a kjökkenmöddings."*

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* 'Through America,' by W. G. Marshall, M.A.

† 'Field,' May 8th, 1869.

In Brand's 'Popular Antiquities' we are told, that oysters are in season in London on St. James's Day, July 25th (old style), and that there is a popular superstition still in force, similar to that relating to goose on Michaelmas Day, viz., that whoever eats oysters on that day will never want money for the rest of the year; but the real oyster season is considered to commence on the 4th of August, and last until January, and the natives especially, from October to March. Oysters are said to be in season when the month has the letter *r* in it. In 'Poor Robin's Almanack,' 1719, under *September*, he says,—

> "This month hath gotten an R in't,
> By which Astrologers do hint,
> That the Fish icleped oysters,
> Are in their operative moistures,
> Which tho' counted ungodly meat,
> Because without grace they are eat,

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* 'Report of the Commissioners of Fisheries of Maryland,' 1880. 'Development of the American Oyster,' by W. K. Brooks.

And also uncharitable,
'Cause naught but Shells come from Table,
Whereby the Poor small comfort gain,
Yet this for Truth I will maintain,
That with a glass of good Canary,
(Oh ! which to drink too much be chary ;)
Being wash'd down, I say with sack,
No commendations they need lack !"

Oysters are very beneficial to persons who suffer from weak digestions, but then they must be eaten raw, and without vinegar or pepper, and I have known an invalid able to eat oysters when quite unable to take any other food; and oysters are also recommended for consumptive patients. Mr. Frank Buckland gives the following description of the composition of an oyster, viz., the chemical ingredients contained in them, "Oysters contain a great deal of water of the same composition as sea-water; namely, hydro-chlorate of soda, hydro-chlorate of magnesia, sulphate of lime, sulphate of soda, and sulphate of magnesia, phosphate of iron and lime. Then they contain much osmazome, or creatine. You cannot see osmazome very well, but osmazome is the smell of roast beef.. It is the same thing as the essence of meat. The oyster also contains a certain quantity of gelatine and mucus, which renders it so digestible, and thirdly, it contains an animal material of which phosphorus is the principal ingredient. Phosphorus is the principal brain-making form of food that we can take, and therefore those who are fond of literary pursuits, who have to work hard, always find that oysters will bring them better up to the mark than any other form of food that they can take."*

In China, fresh oysters are used to cure freckles. I have already mentioned that artificial oyster cultivation is carried on in China, and has been for many generations. The principal oyster-beds are situated near the mainland, opposite the north and east of Namoa Island. Pieces of rock or stones are laid out on the beds, old oysters are placed on them, and here the spat is deposited. After three years, the oysters are brought to market. As regards quality, they are inferior to those of Amoy and Foochow, which are exported on a large scale to the ports along the coasts.*

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* 'Report on Oyster Fisheries,' 1876.

M. Dabry de Thersant says that there are some prolific beds in the neighbourhood of Macao, which, after deducting the working expenses, about £600, return an annual profit of more than £2000. A staff of eight men are employed on these beds, at about £1 per month each. Another bed which is leased for an annual sum of £10, for thirty years, returns a profit of from £1100 to £1200 per annum.†

The best oysters are those collected in January, February, and March. There are several species of oysters in China. The *Bamboo Oysters* are grown in the following manner. Old oyster-shells of two kinds are selected, thick and thin, each of the thick ones having a hole one and a half inches in diameter bored through the centre of it. Slips of bamboo about two feet in length, one and a half inches wide, and half an inch thick, are pointed and split to about half the distance down, a thin shell is inserted in each split near its bottom end, the two top ends of each split are pressed together and thrust into the perforated shell, which holds it securely. When a sufficient number of bamboos have been prepared, they are planted very closely together on the mud flats, much in the same way as a gardener plants cuttings. At the end of about a month, the spat, which had attached itself to them when planted out, has developed into small oysters. The bamboos are then taken up and transplanted about six inches apart. In four or five months the bamboos are almost hid by the oysters which cluster round them, and which are now collected and sold.* The shells of the oyster and murex were used by the Romans as tooth-powder, and oyster-shells are now used as manure. The Chinese use the shells, when ground down, in certain skin diseases; and the valves of *Ostrea talienwanensis*, and of other species of oysters, are calcined until quite white, pulverized, and then mixed with the juice of certain plants, as a dressing for ulcers.† In the crab traps in China, which are made of bamboo in the shape of a truncated cone, the bait is placed in the middle of the basket, and an oyster is generally used for that purpose.

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* 'China: Imperial Maritime Customs.' Special Catalogue, International Fisheries Exhibition, London, 1883.

† 'Flight of the Lapwing.'

Juan Francisco de San Antonio, in his 'Chronicos de los Rel. Descalzos de S. Francisco,' &c., 1738, mentions the use of great oyster-shells for "holy water," and speaks of one known to be ninety years old, by the layers of its shell. But I fancy he must mean the shell of the *Tridacna gigas*, as we know it is used for that purpose; and in the church of St. Sulpice, in Paris, are two of these shells resting upon rock-work in marble, by Pigalle; they were given to Francis I. by the Republic of Venice. In the 'Intellectual Observer,' vol. i., p. 483, is an account of an "oyster-shell" island, by M. Aucapitaine, on the east coast of Corsica, composed of layers of shells, bearing some resemblance to the shell-mounds of St. Michel-en-l'Herm, in La Vendée. This island is formed of still-living species, and is between three hundred and four hundred yards in circumference, the greatest elevation about thirty yards, and the mean elevation rather more than two yards above the level of the sea. The Romans are said by the fishermen to have deposited the shells of the oysters there, which they salted for exportation, but M. Aucapitaine does not believe in the artificial origin of this island.

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* 'China: Imperial Maritime Customs,' &c.

† 'Essai sur la Pharmacie et la Matière Médicale des Chinois,' par J. O. Debeaux.

According to M. de Quatrefages, the shell-mounds of St. Michel-en-l'Herm are composed of oyster, mussel, and scallop shells, of the same species as those living now in the neighbouring seas. Many of them have their valves still connected by the ligament which forms the hinge, and they have not even changed colour. The three banks of St. Michel-en-l'Herm are about seven hundred and thirty yards in length, three hundred in width, and rise about ten to fifteen yards above the level of the surrounding marshes.

Mr. Buckland mentions a large heap of oyster-shells in Galway Bay, at a place called Creggauns; another south-west of Tyrone, and one at Ardfry Point. The Creggauns heap consists principally of the shells of the oyster, mussel, and common cockle, though the whelk, *Pecten varius*, periwinkle, limpet, *Nassa reticulata*, *Helix nemoralis*, *Trochus*, and *Venerupis decussata* (*Tapes decussata?*), are also found in it. There are layers of wood-ashes and stones, apparently used as hearthstones, showing the marks of having been subjected to fire, but no weapons. The heap occupies an irregular space of two hundred feet long, and sixty feet wide, and ranges from six to eight feet deep. There are various traditions as to the age of the heaps; and it is said, that ninety years ago a series of high tides cast up the heap of shells from adjoining beds.*

Dr. Schliemann found oyster-shells in large numbers in the ruins of all the five prehistoric settlements at Hissarlik, showing that oysters must have been a favourite food with all the early settlers, and their abundance in the first and oldest city is confirmed by Professor R. Virchow.†

In an old kitchen-midden, in the Andaman Islands, close to the landing-place at Homfray's Ghât, Mount Augusta, the valves of oysters *Arcidæ* and *Cyrenidæ*, are found in abundance, but the present race of Andamanese are stated by Mr. Ball not to eat oysters, which suggests the idea that possibly there were different inhabitants of this portion of the island at some former period.‡ Saint-Hilaire describes heaps of oyster and other shells, bordering the river Piriqui-assú, near Aldea Velha, which are without doubt *kjökkenmöddings*. Similar shell-heaps, or *Ostreiras*, as they are called in Brazil, are found on the coast of São Paulo, and on the Ilha do Governador, in the Bay of Rio. They often contain human remains, pottery, &c.§

At the present day the Baltic appears to be almost the only sea where the oyster will not grow, a fact attributable to the very great influx of fresh water from the mouths of its many rivers, and the less powerful current from the ocean, so that, in the words of Sir Charles Lyell, "the *Ostrea edulis* cannot live at present in the brackish waters of the Baltic, except near its entrance." Yet, from the examination of the Danish *kjökkenmöddings*, it appears "that the oyster flourished in places from which it is now excluded, attaining its full size."

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* 'Field,' February 4th, 1865.

† 'Troja,' by Dr. Henry Schliemann, see note vi. p. 285.

‡ 'Jungle Life in India.'

§ 'Scientific Results of Agassiz's Journey,' by Charles Fred. Hartt. Note.

Oysters may be eaten in various ways, either cooked or raw :—

> "The pepper-box, the cruet,—wait
> To give a relish to the taste ;
> The mouth is watering for the bait
> Within the pearly cloisters cased.
>
> "Take off the beard,—as quick as thought,
> The pointed knife divides the flesh ;
> What plates are laden ! Loads are brought,
> And eaten raw, and cold, and fresh."*

The oddest way of cooking an oyster, of which we have any mention, is that recorded by Evelyn, who, in the year 1672, saw Richardson, "the famous fire-eater," perform wondrous feats, one of which was, "taking a live coal on his tongue, he put on it a raw oyster ; the coal was blown on with bellows, till it flam'd and sparkl'd in his mouth, and so remained till the oyster gaped, and was quite boil'd." Who ate the oyster thus cooked, we are not informed.†

The Chinese seldom eat fresh oysters, they are usually dried. They are first boiled for a short time, and then either exposed to the sun, or dried over a slow fire until they look like mushrooms, and give off a nasty rancid smell. When they are eaten fresh, they are taken with ginger and vinegar, and a sauce is made by boiling down the water in which oysters have previously been boiled.*

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* Hone's 'Every Day Book,' vol. ii. p. 1071.

† 'Evelyn's Memoirs,' vol. i. p. 438.

"*Oyster Soup.*—Take fifty oysters; blanch them, but do not let them boil; strain through a sieve, and save the liquor. Put a quarter of a pound of butter into a stew-pan; when it is melted, add six ounces of flour; stir it over the fire for a few minutes, add the liquor from the oysters, two quarts of veal stock, one quart of new milk; season with salt, peppercorns, a little cayenne pepper, a blade of mace, Harvey's sauce and essence of anchovy, a tablespoonful of each; strain it through a tammy, let it boil ten minutes; put the oysters into the tureen, with a gill of cream, and pour the boiling soup upon them." †

Gower Recipe for Oyster Soup.—Boil four sheep's feet in two quarts of water, till reduced to one quart; it will then be a stiff jelly; put in it, while boiling, a small blade of mace; take off the fat, and thicken it with one and a half tablespoonfuls of ground rice; add from twenty to fifty oysters; boil it till thick enough, and add a teacupful of cream.

Oyster Soup is also particularly good when made with a fish stock; as, for instance, with equal quantities of flounders, skate, and eels, or indeed with any fish that is abundant, and not much in request for other purposes.

Oyster Soup.—Take four dozen oysters; lay the fish apart, and pass the liquor through a sieve, into a stew-pan; set it on the fire; beat up the yolks of six eggs, and stir them in with half a pint of cream; add water or milk to the required quantity; season with pepper, a little grated lemon-peel, and the flesh of an anchovy beaten up, with a little butter and a small teaspoonful of good arrowroot. Five minutes before serving, put in the oysters.*

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* 'Flight of the Lapwing.'

† Murray's 'Modern Cookery.'

"*Potage à la Poissonnière.*—Blanch and beard two dozen of oysters, and four dozen of very fresh mussels; put a quarter of a pound of butter into a stew-pan, with six ounces of flour, make a white *roux;* when cool, add the liquor of the oysters, mussels, and bones of a sole, with two quarts of broth, and three pints of milk; season with a spoonful of salt, one ditto of sugar, a sprig of thyme, parsley, two bay-leaves, four cloves, and two blades of mace; pass through a tammy into a clean stew-pan; boil and skim well; cut about ten pieces of salmon into thin slices, half an inch long, a quarter of an inch wide; cut the fillet of the sole the same size; put all into the boiling soup, with half a handful of picked parsley and a gill of good cream; put the oysters and mussels in the tureen, and serve." †

"*Oyster Mouth Soup.*—Make a rich mutton broth, with two large onions, three blades of mace, and black pepper. When strained, pour it on a hundred and fifty oysters, without the beards, and a bit of butter rolled in flour; simmer gently a quarter of an hour, and serve." ‡

"*To make an Oyster Soup.*—Your stock must be made of any sort of fish the place affords; let there be about two quarts. Take a pint of oysters, beard them put them into a saucepan, strain the liquor, let them stew two or three minutes in their own liquor, then take the hard parts of the oysters, and beat them in a mortar with the yolks of four hard-boiled eggs; mix them with some of the soup, put them with the other part of the oysters and liquor into a saucepan, a little nutmeg, pepper, and salt; stir them well together, and let it boil a quarter of an hour. Dish it up, and send it to table."*

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* Maître Jacques.

† 'The Gastronomic Regenerator,' by Mons. A. Soyer.

‡ 'All About Oysters.'

"*White Oyster Sauce* (No. 43).—First scald and beard the oysters, and save the liquor. Next knead two ounces of butter, with one ounce of flour (or, better still, with arrowroot), in a stew-pan; add the liquor, a gill of cream or milk, a little nutmeg, cayenne, anchovy, and lemon-juice; stir over the fire until the sauce boils, then add the oysters and serve hot." †

"*Brown Oyster Sauce* (No. 44).—Prepare the oysters as in the foregoing recipe, boil down their liquor, add half a pint of brown sauce (No. 12), or if there is none ready, use melted butter instead, adding a little browning; season with a little anchovy, cayenne, and lemon-juice; add the oysters; boil together for a few minutes, and serve hot." ‡

"*Oyster Sauce.*—Set a pint of cream upon the hob, beside a fire of clear glowing ashes, in an earthenware pipkin, glazed inside. Take two ounces of butter, and intimately mix with part of it a teaspoonful of best arrowroot, flavour with the flesh of anchovy, pounded, a dash of cayenne-wine, a squeeze of lemon-juice, and a scrap of peel, and stir in the whole, letting it boil until of the proper consistence; then put in the oysters (if of a large size they should be cut into halves or quarters), and keep stirring the sauce for about two minutes.—N.B. In mixing the butter with the cream take care that the blending proceeds slowly, and keep stirring gently with a wooden spoon." *

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* 'The Art of Cookery made Plain and Easy.'

† Francatelli's 'Cook's Guide.'

‡ Idem.

"*Old Recipe for Making Oyster Sauce.*—Take half a pint of large oysters, liquor and all; put them into a saucepan with two or three blades of mace, and twelve whole peppercorns; let them simmer over a slow fire, till the oysters are fine and plump, then carefully with a fork take out the oysters from the liquor and spice, and let the liquor boil five or six minutes; strain the liquor, wash out the saucepan well, and put the oysters and liquor into the saucepan again with half a pint of gravy, and half a pound of butter just rolled in a little flour. Add two spoonfuls of white wine, keep it stirring till the sauce boils, and all the butter is melted."

"*Oyster Atlets.*—Blanch throat-sweetbreads, and cut them into slices; then take rashers of bacon the size of the slices of sweetbreads, and as many large oysters blanched as there are pieces of sweetbread and bacon. Put the whole into a stew-pan, with a piece of fresh butter, parsley, thyme, and eschalots, chopped very fine; pepper, salt, and lemon-juice, a small quantity of each. Put them over a slow fire, and simmer them five minutes. Then lay them on a dish, and when a little cool, put them upon a small wooden or silver skewer; a slice of sweetbread, a slice of bacon, and an oyster, and so on alternately till the skewers are full; then put bread-crumbs over them, which should be rubbed through a hair-sieve, and broil the atlets gently till done and of a light-brown colour. Serve them up with a little cullis under them, together with the liquor from the blanched oysters reduced and added to it."*

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* Maître Jacques.

"*Curried Oyster Atlets.*—Take slices of sweetbreads, or slices of mutton or veal of the same size, put them into a stew-pan with a piece of fresh butter, a tablespoonful of currie-powder, the juice of half a lemon, and a little salt. Set them over a slow fire, and when they are half done, add to them blanched and bearded oysters, with their liquor free from sediment, simmer together five minutes, lay them on a dish, and when cold put them alternately on small wooden skewers. Then dip them in the liquor, strew fine bread-crumbs on each side, broil them over a clear fire till of a brown-colour, and serve them up with some currie sauce under them.—N.B. The slices of sweetbread, oyster, veal, or mutton, to be of an equal number."†

"*Curried Oysters.*—Let a hundred of large sea-oysters be opened into a basin, without losing one drop of their liquor. Put a lump of fresh butter into a good-sized saucepan, and when it boils, add a large onion, cut it into thin slices, and let it fry in the uncovered stew-pan until it is of a rich brown; now add a bit more butter, and two or three tablespoonfuls of currie-powder. When these ingredients are well mixed over the fire with a wooden spoon, add gradually either hot water or broth from the stockpot, cover the stew-pan, and let the whole boil up.

"Meanwhile, have ready the meat of a cocoa-nut, grated or rasped fine, put this into the stew-pan with a few sour tamarinds (if they are to be obtained, if not, a sour apple chopped). Let the whole simmer over the fire until the apple is dissolved, and the cocoa-nut very tender; then add a strong thickening made of flour and water, and sufficient salt, as a currie will not bear being salted at table. Let this boil up for five minutes. Have ready also a vegetable marrow, or part of one, cut into bits, and sufficiently boiled to require little or no further cooking. Put this in with a tomato or two; either of these vegetables may be omitted. Now put into the stew-pan the oysters, with their own liquor, and the milk of the cocoa-nut, if it be perfectly sweet; stir them well with the former ingredients; boil the currie, stew gently for a few minutes, then throw in the strained juice of half a lemon. Stir the currie from time to time with a wooden spoon, and, as soon as the oysters are done enough, serve it up, with a corresponding dish of rice on the opposite side of the table. This dish is considered at Madras the *ne plus ultra* of Indian cookery."*

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* 'Old Cookery Book.'

† Idem.

"*To Stew Oysters.*—Take the oysters clean from their liquor. Let the liquor stand till it is clear; then put a little of it to the oysters, and stew them; then put to them a little white wine, a little cream, a little lemon-juice, and a bit of butter; shake them together, then serve."†

"*American Box Stew.*—For six people open six dozen of oysters, put them in a basin with their own liquor. Place in a stew-pan a pint and a half of milk and a quarter of a pound of butter, pepper and salt to taste;

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* Miss Acton's 'Modern Cookery Book,' taken from 'Magazine of Domestic Economy.'

† MS. Book.

thicken with a teaspoonful of flour, then add the yolks of two eggs; when boiling throw in the oysters and liquor, let it boil up again; then pour immediately into six soup plates; in the bottom of each a round of dry toast must have been previously placed. Some prefer two dozen of oysters to each soup-plate, instead of one dozen, in which case, double the quantity of oysters and their liquor is required, leaving the other ingredients as before."*

"*Oysters Stewed.*—Wash them in their own liquor, strain them, put them into a saucepan with some white pepper pounded, a little beaten mace, a little cream, a piece of butter mixed with flour; stir this till it boils, throw in the oysters, simmer them till enough; add salt if required; toasted sippets round the dish."†

"*To Stew Oysters another way.*—Take a quart of oysters, wash them one by one in their own liquor with a little vinegar and white wine; then strain the liquor into a saucepan, and put your oysters to it, with a bit of mace, whole pepper, cloves, nutmeg, and a very little thyme and savory, a whole onion, and a little lemon-peel; cover it close, and let it stew very slowly almost a quarter of an hour; then make a sauce with six spoonfuls of the liquor, shalot, anchovies, some butter, a little mace, and juice of lemon; wet sippets in the stewed liquor and lay them upon a plate, lay your oysters on them, the best side upwards, and crumble the yolks of two or three hard-boiled eggs over them, so pour on your sauce. Garnish with lemon and barberries.‡"

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* 'All About Oysters.'

† 'The Lady's Assistant,' by Mrs. Charlotte Mason, 1775.

‡ 'The Lady's Companion,' 1753, vol. ii. p. 154.

"*Oysters Stewed with Milk.*—Take a pint of fine American oysters, put them with their own liquor and a gill of milk into a stew-pan, and, if liked, a blade of mace; set it over the fire, take off any scum which may rise; when they are plump and white, turn them into a deep plate; add a little butter and pepper to taste. Serve crackers and dressed celery with them."*

"*To Stew Oysters the French way.*—Parboil a quart of oysters in their own liquor, wash them in warm water, beard them, and put them into a pipkin with a little of their own liquor, white wine, salt, pepper, and a whole onion, and let them stew till they are done enough; then put them, liquor and all, into a frying-pan, and fry them a little; then put in a lump of fresh butter, and fry a little longer; then take the yolks of four eggs dissolved in vinegar, with minced parsley, and grated nutmeg, put these into the frying-pan to the oysters, shake them, let them have a walm (*sic*) or two, and serve them."†

"*Dutch Oysters.*—Roll rock oysters in yolk of egg, then dip them in grated bread-crumbs and white pepper, one by one, and fry them in butter. Serve them with melted butter in a sauce tureen."‡

To Fry Oysters.—Take the largest oysters, open them, but do *not mangle them*, wash them in their own liquor, and take away all bits of shells; strew a little flour over them. Dip them in the yolk of an egg, and fry them brown in butter.

"*To Fry Oysters another way.*—Beat four eggs with salt, add a little nutmeg grated, and a spoonful of grated bread, then make it as thick as batter for pancakes, with fine flour; drop in the oysters, and fry them brown in clarified beef suet. They are to lay round any dish of fish."*

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* Mrs. Crowen's 'American Lady's Cookery Book.'

† 'The Lady's Companion,' 1753, vol. i. p. 164.

‡ 'The English Cookery Book,' edited by J. H. Walsh.

"*To Fry Oysters.*—Take two quarts of large oysters, parboil them in their own liquor, then wash them in warm water, dry them, beard them, and flour them; then fry them crisp in clarified butter; then lay in the dish prawns or shrimps buttered with cream and sweet butter, and lay the fried oysters about them; run them over with beaten butter, and the juice of oranges; lay bay-leaves and orange or lemon in slices round the oysters."†

"*To Fry Oysters.*—Open large oysters, and lay them on a sieve to drain; then put them into a marinade of the juice of three or four lemons, and a sliced onion, pepper, a little basil, a bay-leaf, and five or six cloves. Turn the oysters often when they lie in this marinade. Then make a batter with flour and water, and one egg and a little salt. Beat these well together; melt a bit of butter as big as a walnut, and mix it with your batter; then take your oysters out of the marinade, and dry them well between two napkins, dip the oysters in the batter, and fry them in clarified butter made very hot. When they are fried brown, serve them up on a clean napkin, with fried parsley."‡

"*Fried Oysters—Ostras Asada,* Spanish recipe.—Take the fish out of the shells, and simmer slowly for some minutes in their own liquor. Add salt, pepper, parsley chopped fine, a clove of garlic, some oil or butter, in which fry them gently; stir in a spoonful of flour, and moisten them with equal quantities of broth and wine. When done, add the juice of a lemon "

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* 'The Housewife's Pocket Book.'

† 'Cook's and Confectioner's Dictionary,' John Nott. ‡ Idem.

"*Fried Oysters; another way.*—Beat up two or three eggs in a cup, and rasp bread-crumbs on a plate, with sweet herbs powdered, and lemon-peel. Dry the oysters as much as possible, souse them in the egg, and cover them with crumbs. Fry them in plenty of good butter, and serve with lemon-juice, cayenne, and brown bread and butter, cut thin."*

"*A Ragoût of Oysters.*—Melt some butter, put in a little flour; keep it stirring till brown; wet it with gravy; put in a crust with the oysters and liquor; toss it; season, with pepper, parsley, and fish broth."

"*A Ragoût of Oysters—Ostras Guisadas,* Spanish recipe.—Put the liquor of the oysters into a saucepan, with strong broth, and warm it, salt to your taste; then add the oysters, and a chopped anchovy or two; let them simmer, but not boil; serve with chicken, or white meat."

"*Grilled Oysters*—Open and detach the largest oysters; place upon each a small piece of butter, well mixed with finely chopped parsley and spices; place them on the gridiron, and when they begin to boil, serve them on a dish; or else detach the oysters from their shells, and let them simmer in their own liquor; take them out, and let them be placed again over the fire, with a piece of butter, parsley, some pepper, and a little lemon-juice. Put four oysters into each shell (after it has been well cleansed), and place the shell on the gridiron again for a few minutes, taking care not to let them boil up."†

"*Oysters broiled the Dutch way.*—Take two quarts of large oysters, open and parboil them in their own liquor; strain them, and then put them into a pipkin, with some mace, butter, and slices of onion; stew them, and after that place the shells on a gridiron, and put two or three oysters into a shell; let them broil or stew in their own liquor, and so setting them on plates, fill them with beaten butter, and serve them up."*

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* Maître Jacques.

† 'La Cuisinière de la Campagne.'

"*To Roast Oysters* (206).—Place the oysters unopened between the bars of a fire, or in a charcoal stove. They require about six or eight minutes time."†

"*Oysters Roasted.*—Take large oysters and spit them upon little long sticks, and tie them to the spit, lay them down to the fire, and when they are dry, baste them with claret wine; put into the pan two anchovies, and two or three bay-leaves; when you think they are sufficiently done, baste them with butter, and dredge them, and take a little of the liquor out of the pan, and some butter, and beat it in a porringer, and pour over them."‡

"*Oysters Roasted,* American recipe.—Wash the shells perfectly clean, wipe them dry, and lay them on a gridiron, the largest side to the fire; set it over a bright bed of coals; when the shells open wide, and the oyster looks white, they are done; fold a napkin on a large dish or tray, lay the oysters on it in their shells, taking care not to lose the juice; serve hot.

"When oysters (large American ?) are served roasted at supper, there must be a small tub between each two chairs, to receive the shells, and large coarse napkins called oyster napkins. Serve cold butter and rolls, or crackers, with roasted oysters."*

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* 'The Family Dictionary,' by William Salmon, 1710.

† 'The English Cookery Book.'

‡ 'The Family Dictionary.'

"*Oysters—Ostras á la Pollada*, Spanish recipe.—Take oysters out of their shells, and blanch them in boiling water; then throw them into cold water, and take them out and let them drain. Put into a saucepan a piece of butter mixed with flour, parsley chopped fine, and mushrooms; warm this over the fire, and add sufficient broth to moisten it, and when it is thickened sufficiently, add the oysters seasoned with pepper and salt, and let the whole boil. The moment before serving add the juice of a lemon, or a little vinegar."

"*Boiled Oysters.*—Wash the shells nicely, and put them into a pot or pan, with the edges downwards; put a pint, or a little less, of water to them, and put them over a brisk fire. As soon as the shells open wide, take them off, and take out the shells; then take up the oysters with a skimmer, and put them into a deep dish; put to them some of the liquor which boiled from them; add to it butter and pepper to taste, and serve with rolls, crackers, or toast." For persons in delicate health, this manner of preparing oysters, is both light and healthful.†

"*Oyster Sausages.*—Mince a pint of oysters, scalded so as to make them hard, and also a pound of lean sirloin of beef, and mix them; season with pepper, salt, and mace; mix up well with the yolks of eight eggs, shape them like sausages, and fry in butter."‡

"*To make Oyster Sausages.*—Take the flesh of the inside of a loin of mutton, and chop it as for force-meat, and season it with spice; then put to it fifty oysters, chopped very small, with a little French bread grated, and the yolks of four eggs, with a little chopped onion, a little beef-suet, and a little lemon-peel. *Roll* it into what form you please, and, if you do not use it, cover it up, and it will keep a long time."

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* Mrs. Crowen's 'American Lady's Cookery Book.'

† Idem.

‡ Maitre Jacques.

"*To Mince Oysters.*—Take half a hundred oysters, and put them into warm water; when they are ready to boil, shift them into cold water; then drain them, and take that part only which is tender. If you mix the flesh of carp with your oysters, it will increase your mince, and give it a better flavour. Put a bit of butter, shred parsley, scallions, and champignons, into a stew-pan, and shake them over the fire, add a little flour, and moisten them afterwards with a gill of white wine, and as much *soupe maigre;* then put in your mince, and let it stew till the sauce be consumed; season it agreeably, and when you are ready to serve it, put in the yolks of three eggs, beat up with some cream."*

"*Oyster Force-meat.*—Open carefully a dozen fine oysters, take off the beards, strain their liquor, and rinse the oysters in it; grate four ounces of the crumb of a stale loaf into light crumbs, mince the oysters, but not too small, and mix them with the bread; add an ounce and a half of good butter, broken into minute bits, the grated rind of half a small lemon, a small saltspoonful of pounded mace, some cayenne, a little salt, and a large teaspoonful of parsley. Mingle these ingredients well, and work them together with the unbeaten yolk of an egg, and a little of the oyster liquor, the remainder of which can be added to the sauce, which usually accompanies this force-meat."†

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* 'The French Family Cook.' † Miss Acton's 'Modern Cookery.'

"*Oysters and Chestnuts.*—Dip some oysters into a savory batter; bread-crumb them, and fry them brown. In the same manner treat a similar number of blanched Spanish chestnuts. Make a sauce with the oyster liquor, a piece of butter rubbed in flour, and two glasses of white wine. Stew the chestnuts in this; add some yolk of egg to thicken it, and pour it upon the oysters."*

"*Oyster Steak.*—Take a steak double the usual thickness, and with a very sharp knife divide it in the centre from one side only, so as to form a sort of bag. Open sufficient oysters to stuff the bag; season with salt and pepper; add a lump of butter and some of the oyster liquor; sew it up carefully, put it on a gridiron, let it gradually cook so as to warm the oysters right through. Serve hot with butter, pepper, and salt."†

"*Scalloped Oysters.*—Scald and beard some dozens of oysters; strain the liquor into a stew-pan, and add thereto two ounces of butter, mixed or kneaded with two ounces of flour, a little cream, anchovy, nutmeg, and cayenne; stir the sauce over the fire to boil, and reduce for ten minutes; then add a couple of yolks of eggs, and a little lemon-juice, and some chopped parsley; add the oysters, cut each in halves; stir all together over the fire for a few minutes, and fill some scallop-shells with this preparation; cover them over with a thick coating of fried bread-crumbs; place them on a baking-sheet in the oven for five minutes, and serve hot."‡ If you have no scallop-shells, the deep shell of the oyster, well scoured, will serve the purpose.

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* 'Household Manuals: How to Cook Fish,' by Georgiana Hill.

† 'All About Oysters.'

‡ Francatelli's 'Cook's Guide.'

Many people, however, who prefer the real taste of the oyster, and do not like to conceal it beneath that of spice, prefer the old-fashioned way of scalloping oysters, which is as follows:—

"*Old way of Scalloping Oysters.*—Beard the oysters; scald the beards in the liquor from the fish, then strain them off; lay alternate layers of bread-crumbs, oysters, and small bits of butter in the shells, very slightly peppering them as you proceed. Pour the liquor in which you scalded the beards, over them; put them into the oven till nicely browned, and if you find the colour not bright enough, put them before the fire for a few minutes, or salamander them. A little cream, added after the shells are filled, but before they are put in the oven, is a great improvement."

By lining the dish, and covering the oysters with puff paste, this is converted into an *Oyster Pie*, which makes an excellent dish.

"*Scalloped Oysters.*—*Ostras en Concha,* Spanish recipe. —Select the largest shells, and scrub them very clean; put four or six oysters into each, with their liquor, and cover them with bread-crumbs, seasoned with pepper and salt; then place the shells on the gridiron till the fish is cooked."

"*Oyster Fritters* (2997).—Make a batter of flour, milk, and eggs; season with a very little nutmeg. Beard the oysters, and put as many as you think proper in each fritter."*

"*Oyster Loaves.*—Open the oysters, and save the liquor; wash them in it; then strain it through a sieve, and put a little of it into a tosser, with a bit of butter and flour, white pepper, a scrape of nutmeg, and a little cream, stew them, cut in dice; put them into rolls sold for the purpose."*

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* 'Enquire Within upon Everything.'

"*An Oyster Loaf.*—Cut round holes in the tops of French rolls; take out all the crumb, rub them over the sides with a tender force-meat made of fat oysters, part of an eel, pistachio nuts, mushrooms, spice, and the yolks of two hard eggs; beat these well together in a mortar, with a raw egg; then fry the rolls crisp in lard, and fill them with a quart of oysters; the rest of the eel cut like lard, spice, mushrooms, and anchovies tossed up in their own liquor, and half a pint of white wine; thicken it with eggs, and a bit of butter rolled in flour."†

"*Oysters and Macaroni.*—Lay some stewed macaroni in a deep dish; put upon it a thick layer of oysters, bearded, and seasoned with cayenne pepper and grated lemon-rind. Add a small teacupful of cream. Strew bread-crumbs over the top, and brown it in a pretty quick oven. Serve hot with a piquante sauce."‡

"*Oyster Pie.*—As you open the oysters separate them from the liquor, which strain; parboil them, after taking off the beards; parboil sweetbreads, and cutting them in slices, lay them and the oysters in layers; season very lightly with salt, pepper, and mace; then put half a teacupful of liquor, and the same of veal gravy. Bake in a slow oven; and before you serve put in a teacupful of cream, a little more oyster liquor, all warmed, but not boiled."§

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* 'The English Cookery Book.'

† 'The Housekeeper's Pocket Book.'

‡ 'Household Manuals: How to Cook Fish.'

§ Murray's 'Modern Domestic Cookery.'

An Oyster Pie (old recipe).—Parboil a quart of large oysters in their own liquor; mince them small, and pound them in a mortar with pistachio-nuts, marrow, and sweet herbs, an onion, savory, spices, and a little grated bread, lay on butter, and close your pie.

Oyster Pie, another way.—Take a large dish, butter it, spread a rich paste over the sides, and round the edge; but not at the bottom; the oysters should be fresh, and as large and fine as possible; drain off part of the liquor from the oysters; put them into a pan, season them with pepper, salt, and spice; stir them well with the seasoning; have ready the yolks of eggs, chopped fine, and grated bread; pour the oysters (with as much of their liquor as you please) into the dish that has the paste in it; strew over them the chopped egg and grated bread; roll out the lid of the pie, and put it on, crimping the edge handsomely. Bake the pie in a quick oven.

"*Oyster and Eel Pie* (old recipe).—Make puff paste and lay it in your dish; then take great eels and flay them, clean them, cut them in pieces, and wash them dry. Lay some butter in your pye, and season your eels with some pepper, salt, nutmeg, cloves, and mace; and put them in; cover them all over with great oysters, and add more of your beaten spices and salt, cover the whole with butter, and put in two or three spoonfuls of white wine; so close it with paste, bake it, and serve it in hot."

Oyster and Parsnip Pie.—Boil the parsnips tender and cut them in slices, then line your dish with good paste, and lay upon it some pieces of butter, then a layer of parsnips, some spice, pepper, &c., then some oysters, and yolks of hard-boiled eggs, then more butter and spice, &c., then parsnips, then oysters, eggs, &c., until your dish is filled. Put butter on the top of all, and cover it all with paste; bake half an hour, or so, and when it comes out of the oven, pour over it melted butter, and juice of lemon, and serve hot.

"*Pickled Oysters.*—Put two dozen of large oysters into a stew-pan over a fire, with their liquor only, and boil them five minutes; then strain the liquor into another stew-pan, and add to it a bay-leaf, a little cayenne pepper, salt, a gill and a half of vinegar, half a gill of ketchup, a blade of mace, a few allspice, and a bit of lemon-peel; boil it till three parts reduced, then beard and wash the oysters, put them to the pickle, and boil them together two minutes. When they are to be served up, place the oysters in rows, and strain the liquor over them; garnish the dish with slices of lemon or barberries."*

Glamorganshire way of Pickling Oysters.—Beard them nicely; then slowly stew them in the liquor from their shells, with a bay-leaf or two, and some whole black pepper; a very small quantity of vinegar is then added, and they are placed in stone jars, corked, and covered with pitch. They are then ready for the London markets.

This oyster pickling may be seen going on in almost every cottage. The oysters when raw sell at 1*s*. the hundred, and when pickled at about 1*s*. 9*d*., or even at 2*s*.

Soyer's Recipe for Pickling Oysters for the London Markets.—"Put the oysters, with their liquor, in an earthen pan on the fire to simmer; take off the scum as it rises; add some whole pepper, sliced ginger

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* From an old Cookery Book.

(green if possible), a few cloves, some chopped chillies, and a little vinegar; simmer not longer than five minutes, and take them out; remove the beards, and put the oysters in a barrel, and when the liquor is cold, strain and add it."

Pickled Oysters.—Ostras en Escabechados, Spanish recipe.—"Make a pickle of the liquor of the oysters, chopped onions, parsley, garlic (this, of course, may be omitted if not liked), bay-leaves, marjoram, salt, pepper, butter into which flour has been rubbed, and a few drops of vinegar; when well thickened by boiling, add the oysters, and stir gently."

"*Oyster Powder.*—Open the oysters carefully, so as not to cut them, except in dividing the gristle, which attaches the shells; put them into a mortar, and when you have got as many as you can conveniently pound at once, add about two drachms of salt to about a dozen oysters; pound them, and rub them through the back of a hair-sieve, and put them into a mortar again, with as much flour (but previously thoroughly dried) as will roll them into a paste; roll this paste several times; lastly flour it, and roll it out the thickness of a half-crown, and cut it into pieces about one inch square; lay them in a Dutch oven, where they will dry so gently as not to get burned; turn them every half-hour, and when they begin to dry, crumble them; they will take about four hours to dry; pound them, sift them, and put them into dry bottles; cork and seal them. Three dozen of natives require seven and half ounces of flour to make them into a paste weighing eleven ounces, and when dried six and half ounces. To make half a pint of sauce, put one ounce of butter into a stew-pan, with three drachms of oyster powder, and six tablespoonfuls of milk; set it on a slow fire, stir it till it boils, and season it with salt; as a sauce it is excellent for fish, fowls, or rump-steaks. Sprinkled on bread-and-butter it makes a good sandwich."*

"*Another Oyster Powder.*—When the oysters are prepared by simmering in their own liquor, cut them across in thin slices; dry them crisp, that they may be reduced to fine powder. Pack and use them for sauces, as truffles or morrels."†

"*Oysters on Toast.*—Open oysters, put them in a pan with their liquor, a quarter of a teaspoonful of pepper, a wine glass of milk, two cloves, and a small piece of mace, if handy; boil a few minutes until set; mix one ounce of butter with half an ounce of flour; put it (in small pieces) in the pan; stir round, when near boiling pour over the toast and serve. A little sugar and the juice of a lemon is a great improvement."‡

"*Oyster Toast.*—Beard and pound a few oysters in a mortar; when they form a paste add a little cream, and season them with pepper; get ready some nice pieces of toast, spread the oyster paste upon them, and place them for a few minutes in an oven to become warm. A little finely chopped pickle may be thrown upon the tops."§

"*Oyster Ketchup.*—Pound the fish, and add to each pint of them one pint of sherry wine, one ounce of salt, powdered mace two drachms, pepper one drachm. Boil up, skim, strain; add to each pint two teaspoonfuls of brandy, then bottle, to flavour sauces when oysters are out of season."||

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* 'Enquire Within upon Everything.

† 'Indian Domestic Economy.'

‡ 'All About Oysters.'

§ Idem.

|| 'Dictionary of Practical Receipts,' by G. W. Francis.

"*Oysters an Gratin.*—Set a little cream in a pipkin, with a piece of butter (the quantities to be judged according to the size of the dish), and mingle them gradually; add to this a little anchovy sauce, cayenne wine, and grated lemon-peel. Pour half of this in a dish, lay in the oysters, and grate over them a little Parmesan cheese and bread-crumbs (not too thick a layer), seasoned in the usual way; then pour over the rest of the cream and butter, and grate another thin layer of Parmesan and bread-crumbs. Set it in a quick oven, or in a Dutch-oven."*

In the Mediterranean, a species of oyster, viz., *Spondylus gœderopus,* is eaten both in Spain and in Italy. The Spanish names for it are *Ostia vermella,* or *Ostia vermeya,* and the Italian, *Spuonnolo,* and *Copiza.*

FAM. PATELLIDÆ.

PATELLA.—LIMPET.

PATELLA VULGATA, Linnæus. *Limpet.*—Shell oval and conical in shape; apex central, or nearly so, strong, sometimes with ribs diverging from the apex to the margin, and sometimes quite smooth. Colours various, pale greyish-yellow or greenish-brown, inside generally showing the same colour through, and the markings of the ribs distinctly towards the margin; the inside of the apex an opaque bluish-white, and the whole slightly polished.

The common limpet is found distributed all round our coasts, where it is greatly valued as bait by fishermen, and Dr. Johnson calculated that in Berwick alone there is an annual consumption of no fewer than

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* Maître Jacques.

11,880,000 limpets for that purpose.* At low tide limpets may be collected in numbers from the rocks and boulders. Some are seen safely ensconced in holes or depressions made by means of the muscular action of their foot or disk, which is the width of the shell; others are seen creeping about in search of fresh resting places, or food, with their tentacles slightly protruding beyond the shell, till alarmed by some touch, or otherwise; and they adhere with wonderful strength to the rocks. Wordsworth says:—

> "And should the strongest arm endeavour
> The limpet from its rock to sever,
> 'Tis seen its loved support to clasp,
> With such tenacity of grasp,
> We wonder that such strength should dwell
> In such a small and simple shell."

Dr. A. Hartwig, remarks in his 'Harmonies of Nature; or, the Unity of Creation,' that the broad-soled foot of the limpet acts as a powerful sucker, and that it has been calculated that the larger species are thus able to produce a resistence equivalent to the weight of 150 lbs., which, considering the sharp angle of the shell, is more than sufficient to defy the strength of a man to raise them.

On the Devonshire coast I have found very large specimens of *Patella vulgata*, and worn quite smooth, some of the shells measuring as much as eight inches in circumference.

Limpets, a foot in diameter, are found on the western coast of South America, and are used by the natives as basins.†

In many places limpets are used for food, especially on the Continent, where they are oftener eaten than the periwinkle. At Naples they make them into soup, and I am told it is an excellent dish. At Eastbourne we have often seen the Irish reapers come down to the shore and eat the limpets raw which they had knocked off the rocks with their knives. The poorer classes at Eastbourne also eat them constantly, the children collecting them at low tide from the rocks. Mr. Patterson, while residing, in 1837, near the town of Larne, Co. Antrim, endeavoured to form some idea of the quantity of the common limpet taken from the rocks on that part of the coast, and used as food; and he had reason to believe that the weight of the boiled fish was above eleven tons. Limpets ready boiled are regularly sold in the fishmarket at Truro, at 1*s*. per quart; and at Plymouth they gather great numbers of them (especially from the breakwater), as well as in the Isle of Man, where they are known by the name of "flitters;" and in Scotland the juice of these shell-fishes is mixed with oatmeal. In the Feroe Isles they call them "flia;" and in 'Life in Normandy' (vol. i. p. 192), we are told "that limpets are constantly eaten by the poor; and that at Granville the children use a square-pointed knife, with a thick back, for getting them off the rocks; some having, in addition, small wooden hammers; others only a stone in their right hands. The edge of the knife was applied always on one side, and never at the top of the shell; a little sharp tap was given, either with the hammer or stone, and the fish fell at once." This reminds us of Hermippus, who says:—

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* Forbes and Hanley, 'Brit. Mollusca,' vol. ii. p. 425.

† Cuming, as quoted by Woodward, in 'Recent and Fossil Shells.'

> "And beating down the limpets from the rocks,
> They make a noise like castanets."[*]

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[*] Athenæus, 'Deipn.' bk. xiv. 39.

The *Patellidæ* were also among the shellfish eaten by the ancients; Diphilus says they have a pleasant flavour, are easily digested, and when boiled are particularly nice.* It is a curious fact, and one which is puzzling to archæologists, that limpet shells should be found in such abundance in cromlechs, both in the Channel Islands and in Brittany, surrounding the remains of the dead, often covering the bones, skulls, &c., to the depth of two and three feet in thickness. Mr. F. C. Lukis, in the 'Journal of the Archæological Association' (vol. i. p. 28), mentions finding limpet-shells, mixed with earth, round the bones in the Cromlech du Tus, or de Hus, Guernsey. Again, in a Cromlech in Jersey, discovered in April, 1848, Mr. Lukis adds that there is a difficulty in solving the great question—*why* such a mass of limpet shells should invariably accompany these abodes of the dead? They are found not only in the earliest deposits, but also amongst the more recent.†

The term "Cromlech," as applied to the *Cromlech du Tus*, is a local name, used in the Channel Islands for a subterranean chamber, lined with upright slabs, covered by a roof of one or more slabs of stone, with a long passage leading to it, formed in like manner of upright slabs covered by large lintels, over which has been raised a tumulus of earth; while our term Cromlech is applied to those covered by one capstone only, without any passage leading to them.‡ Those consisting of chambers and a long entrance passage covered by slabs, within a large tumulus of earth, as at Wellow, near Stoney Littleton; at Rodmartin; at Uley; and at Nympsfield, are called *Tumps.* In speaking of Cromlechs, in the Channel Islands, I do not therefore allude to monuments such as we call Cromlechs; which last, though probably sepulchral, have not yet been found to contain interments.

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* Athenæus, 'Deipn.' vol. i. bk. iii. p. 152.

† 'Journal of the Archæological Association,' vol. iv. p. 336.

‡ See Sir Gardiner Wilkinson, 'British Remains on Dartmoor,' 'Journal of the Archæological Association,' vol. xviii. 1863.

We read that at the Cape of Good Hope, at White Sands, also at Cape Point, and many other places along the coast, there are to be seen a series of shell mounds, containing large *Patellidæ, Haliotis* and other shells. The limpets are of so large a size that they make convenient drinking-cups. All about the mounds are to be found various stone implements used by the people—either Bushmen, or Hottentots.*

In Britton's 'History of Dorset,' mention is made of the finding of a small urn in a barrow in the parish of Lulworth, about two inches high, and one inch in diameter, neatly covered with the shell of a limpet; but it was quite empty. Necklaces of limpets and other shells, strung together on fibre or sinews, are found in early British graves. Beads made from the columella of *Strombus gigas* are found in sepulchral remains in Tennessee, Kentucky, and Indiana,† and the shells of the *Dentalium* made into beads have been met with in tumuli in Ohio.‡ In Egypt, on the mummies of children, necklaces of natural shells, or shells figured in gold, silver, precious stones, &c., are found—chiefly, according to Passalacqua, met with on those of young girls.§

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* 'Notes by a Naturalist on the Challenger,' by H. N. Moseley.

† 'Prehistoric Remains,' by Dr. Daniel Wilson.

‡ 'Flint Chips.'

§ 'A History of Egyptian Mummies,' by Thomas Joseph Pettigrew, F.R.S.

The women of the Andaman Islands wear various ornaments, and, according to Mr. Ball, the most extraordinary are the skulls of their defunct relatives, festooned with strings of shells, which some of them carry suspended from their necks.*

Limpet shells are used for mortar.

In the island of Herm, near Guernsey, poultry are fed on *Patella vulgata;* but it is said that they will not touch *Patella atheletica,* which is also considered too tough for bait.

Sea-birds feed on the *Patella,* and Mr. Gatcombe, in the *Field,* August, 1863, mentions having once taken from the gullet of an oyster-catcher upwards of thirty limpets. He also adds an account of a curious occurrence which took place on the Plymouth breakwater some time ago, "One of the workmen employed on the breakwater observed a sandpiper fluttering in a peculiar manner, and discovered, on approaching it, that it had been made prisoner by a limpet. It would appear that in running about in search of food, the bird's toe had accidentally got under a limpet, which, suddenly closing to the rock, held it fast until the man came up, who with his knife removed the limpet, and released the bird."

The Cornish giant, Tregeagle (who is said to have been a wicked seigneur, once residing in a mansion on the site of Dozmare, or Dosmery Pool, by which it was engulphed, and his park transformed into the barren waste now known as Bodmin Moor,) is supposed to haunt Dozmare Pool, and is condemned to the hopeless task of emptying it with a single limpet shell, which has a hole bored in it. Tregeagle was not an imaginary person, he really existed, and was the dishonest steward of Lord Robartes, of Lanhydrock.*

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* 'Jungle Life.'

The French call this shell *Lépas, Patelle, Jambe, Œil de bouc,*† *Bernicle, Flie,* and the very large ones are called *Ran,* at Cherbourg (the same name as that applied to the *Buccinum,* on that part of the coast);‡ the Germans, call them *Schüsselmuschel, Napfmuschel,* or *Napfschnecke;* the Spaniards, *Diampa, Lampas, Laypas, Lamparas, Lamparons, Conchelos, Cucas, Patgellidas,* and *Barretets;* the Portuguese, *Lapa;* and the Italians, *Lepade;* and in Cornwall limpet shells are called *Crogans,* also *Bernigan,* and *Brennick.*§

To cook Limpets.—Boil them for a few minutes, and take care that the soft part is not broken, as it spoils them; this part is more liable to be broken in the autumn.

Limpet Soup.—Wash them, and free the shells from seaweed, &c., put them into a saucepan and parboil them. Take them out of the shells; chop up some parsley, and put it, with a tablespoonful of oil, or an ounce of lard or butter, into a saucepan, and fry until it becomes brown. Add a pint of water, and, when boiling, throw in the limpets, with a teaspoonful of anchovy sauce, some pepper, and boil again for half an hour; or, if preferred, stew them before putting them into the soup.

To dress Limpets.—Take those of a large size, and fry them with a little butter, pepper, and vinegar. The smaller ones are better boiled, and then eaten with vinegar and pepper.

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* Murray's 'Handbook to Devon and Cornwall.'

† 'British Conchology,' vol. iii. p. 241.

‡ 'Essai d'un Catalogue des Mollusques Marins, Terrestres, et Fluviatiles,' par J. A Macé.

§ 'History of Cornwall,' by the Rev. R. Polwhele.

Eastbourne method of Cooking Limpets.—Put them on the gridiron till all the water boils out of them, and then they are fit to eat.

Dr. Jeffreys speaks highly of *roasted limpets*, having tasted them in the island of Herm. The limpets were placed on the ground, and laid in their usual position, and cooked by being covered with a heap of straw, which had been set on fire, about twenty minutes before dinner.*

"*Limpet Sauce.*—Choose clean-shelled limpets, not covered with barnacles, steep them in fresh water, and then heat them in a close-covered saucepan until they part easily from the shells. They yield a rich brown liquor, in which, after being shelled, they may be stewed for half an hour. Thicken the liquor with butter and flour; strain and season with pepper, cayenne, and salt, and a slight flavouring of lemon-juice or vinegar. The limpets, being tough and indigestible, are not returned into the sauce." †

FAM. HALIOTIDÆ.

HALIOTIS.—EAR-SHELL, OR SEA-EAR.

HALIOTIS TUBERCULATA, Linnæus. *Ear-shell*, or *Venus's Ear.*—Shell ear-shaped; short flat spire, lateral, and nearly concealed; aperture wide; a longitudinal row of perforations on the left margin; the interior pearly and iridescent.

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* 'British Conchology,' vol. iii. p. 239.

† 'Practical Cookery,' by Hartlaw Reid.

The *Ear-shell*, *Ormer*, *Oreille de Mer*, or *Si-ieu* (*six yeux*), is said to take its place in the British fauna solely on account of its being found in the Channel Islands, where it is very abundant; but it is still more so on the coast of France, between St. Malo and Granville, and great quantities are brought from thence to the Jersey market, which is well stocked during the summer, and they are sold at the rate of sixpence a dozen. They are also sold in the market at Cherbourg, and said to be found on the rocks of the breakwater. This celebrated shellfish has been praised by old authors as a most delicate morsel. One writer speaks of the *Ormer*, or *Auris marina*, as "a lump of white pulp, very sweet and luscious," and another, as quoted by Professor Ansted, in his 'Channel Islands,' mentions "a large shellfish, taken plentifully at low tides, called an *Ormond*, that sticks to the rocks, whence we beat them off with a forck or iron hook. 'Tis much bigger than an oyster, and like that, good either fresh or pickled, but infinitely more pleasant to the gusto, so that an epicure would think his palate in paradise if he might but always gormandize on such delicious ambrosia." Athenæus also tells us that the *ὤτια*, or ears, are most nutritious when fried. Again, he says, "But *otaria* (and they are produced in the island called Pharos, which is close to Alexandria) are more nutritious than any of the before-mentioned fish (speaking of cockles, sea-urchins, pinnas, &c.), but they are not easily secreted. But Antigonus, the Carystian, says this kind of oyster is called by the Æolians the 'Ear of Venus.'"*

Captain Beechey, in his 'Voyage to the Pacific,' mentions the abundance of two species of *Haliotis* in the Bay of Monteroy, and that they are much sought after by the Indians, not only for food, but because the shells are used for ornaments, and the natives decorate their baskets with pieces of them. *Haliotis gigantea* is eaten by the Californian Indians, and the Chinese are very partial to Venus's-ears, which form part of a Chinese dinner, with sea-snails, shark's fins, &c. The Koreans dry great numbers of Haliotis and string them upon rattans for the Chinese market, and they sell at the rate of 300 for a dollar.* The shells of *Haliotis tuberculata* are said by M. Debeaux to be used in medicine by the Chinese. The Japanese also use the Haliotidæ as food, and make them into soup.

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* Athenæus, 'Deipn.' vol. i. bk. iii. 35, p. 146.

The large *Haliotis gigantea* they call *Awabi*, and *Haliotis supertexta* is *Tokobushi*. †

The natives of New Zealand call *Haliotis iris* the *mutton fish*.

The Guernsey ear-shells are used by farmers to frighten away small birds from the standing corn—two or three of these shells being strung together and suspended by a string from the end of a large stick, so as to make a clattering noise when moved by the wind.‡

Haliotidæ in great quantities are brought to Birmingham from various parts of the world, for making mother-of-pearl ornaments, buttons, and inlaying papier-maché tables, &c., and this latter art of ornamentation was introduced by George Suter, a decorator in the employ of Messrs. Jennens and Bettridge, who patented the invention in 1825. An instance has been known of a ship arriving at London from Panama, bringing more than two millions of pearl-shells for the English markets. During the last few years pearl-shells have risen in price, and in 1883, the value had increased from £160 to £240 and £250 per ton.*

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* 'Travels of a Naturalist in Japan and Manchuria,' by Arthur Adams, F.L.S., R.N.

† 'Japan,' by J. J. Rein.

‡ 'British Conchology.'

The wholesale price in the Channel Islands for shells of the first quality is £10 per ton, and by retail they are sold at 1*d*. per lb.

Mother-of-pearl, however, is not only made from the *Haliotidæ*, but the snail pearl-shell *Turbo cornutus*, the white pearl-shell, *Meleagrina margaritifera*, are also used in this manufacture.

Mr. John P. Turner, in his account of the 'Birmingham Button Trade,' says, "That no elaborate machinery is employed in the production of pearl buttons." Hitherto skilled hand labour, assisted by nothing but the foot-lathe, was alone employed. The mother-of-pearl which is cut into buttons, is of various kinds. The *white-edged Macassar shells* (*Meleagrina margaritifera*), fished almost entirely from the seas round Macassar, in the East Indies, are the finest in size and quality. The *yellow-edged Manilla shells* are more brittle in turning, and are used chiefly for knife-handles in the Sheffield trade. The *Bombay and Alexandria shells* are smaller in size and less delicate in tint and clearness, and are found in the Persian Gulf and the Red Sea; they vary very much in quality and usefulness.

The *Black shell*, one of the *Haliotidæ*, is brought from the Archipelago of the Pacific Ocean, and is so called because, when polished, it throws out a very dark shade, full, however, of beautiful rainbow tints exquisitely blended. The *Panama shells* are the poorest species of shell, and are used for the inferior kinds of buttons.*

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* *Times*, Feb. 13th, 1883.

Curiously carved pearl-shells, the work of the monks at Bethlehem, are sold by them to pilgrims and others who visit the Holy Land, and Bruce states that mother-of-pearl inlaying was brought to great perfection at Jerusalem. The nacre was from the *Lulu el Berberi*, or Abyssinian oyster. Great quantities were brought daily from the Red Sea to Jerusalem, and crucifixes, wafer-boxes, and beads were made and sent to the Spanish dominions in the New World.†

In the days of luxury at Rome, the panels in the golden house of Nero were of mother-of-pearl, enriched with gold and gems; and dishes, bowls, and cups of pearl-shell, were greatly esteemed in the sixteenth and seventeenth centuries. Leland, in his 'Collectanea,' describes the christening of the child of the Lady Cicile, "wife to John, Erle of Este Frieseland, called the Marquis of Bawden, and sister to Eryke, King of Sweden, and the decorations of the chapel, &c. The christening took place at the 'Queene's Palleyes, Westminster,' 30th Sept., Anno 1565, and the chappell was hung with cloathe of gold. The communion table was richly furnished with plate and jewells, and amongst other ornaments were a 'Fountayne and Basen of mother-of-pearle, two shippes of mother-of-pearle, and another shipe of mother-of-pearle." ‡

Mr. G. R. Corner mentions a very elegant cup in the possession of the Queen, made of staves of turbo-shell mounted on a stem and foot of silver gilt. He also adds that the polished, but unmounted turbo, has been employed as a festive cup in Wales, to a comparatively late period.*

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* As quoted in 'The Midland Hardware District,' edited by Samuel Timmins, containing 'Papier Maché Manufacture,' by W. C. Ritken, Birmingham.

† Bruce's 'Travels,' see Appendix, vol. viii. pp. 337, 338.

‡ 'Gems and Jewels.

We read also of a watch set in "mother-of-pearle, with three pendantes of gold, garnished with sparkes of rubies, and an opall in everie of them, and three small pearles pendent," which Lord Russell presented to Queen Elizabeth; and Margaret, Countess of Derby, presented her with another, as a New Year's gift. "It was a white bear of gold and mother-of-perle holding a ragged staffe (the 'Leicester' device) standing upon a tonne of golde, whearin is a clocke, the same tonne-staffe garnished with dyamondes and rubies."† The Cathedral at Panama has two towers, with short steeples on them painted white, and these steeples are said by Mr. Elwes to be faced with the large pearl-oyster shells; but they do not look well.‡

Glass is seldom seen in Manilla for glazing windows, but the shells of the Chinese oyster (*Placuna placenta*) are used instead;§ and in certain parts of Amoy, the municipal lamps are made in the shape of a granite shaft, surrounded by a wooden box glazed with shells. The shells are well washed, and scrubbed, and then cut into squares, and slid into grooves cut to receive them in the frame of the lamp.||

The scabbard of the sword of the Emperor Napoleon I., which he wore when First Consul, is of gold and

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* 'Journal of Archæological Association,' vol. xiv. pp. 344, 345.

† 'Curiosities of Clocks and Watches,' &c., by Edward J. Wood.

‡ 'W.S.W., or a voyage in that direction to the West Indies.'

§ Collingwood's 'Naturalist's Rambles,' p. 294.

|| 'Flight of the Lapwing.'

mother-of-pearl; and mock pearls are now much used for jewellery made of the pearl-shell; the effect being nearly as good as real pearls, and far better than the most successful imitations in paste; and Theophilus, in his 'Essay on various Arts,' speaks of "sea-shells which are cut into pieces, and filed as pearls, sufficiently useful upon gold."* Various kinds of shells are used for ornamental purposes, on account of their beautiful nacreous layer: *e. g.* a Mediterranean species of the little *Phasianella,* which is made into necklaces, earrings, &c., and known in England as Venetian shells; and in Paris I noticed some pretty bracelets, brooches, earrings, necklaces, and studs, made of the *Trigonia pectinata,* an Australian bivalve, so arranged as to show the bright pinkish-purple nacre inside the valves. Mr. Moseley tells us that numbers of this species of *Trigonia* are dredged in Port Jackson, Sydney, and that this shell is especially interesting to the naturalist, because it occurs fossil in secondary deposits in Europe, and was long supposed to be entirely a thing of the past, until discovered living in Sydney Harbour.† Pearl-oyster shells, set in whale's teeth, are considered to be the most valuable ornament that can be possessed by a Figian; he wears it hanging on his breast, and he is forbidden by the chiefs to sell it.‡ In the Api Islands nearly all the men wear a small triangular ornament cut out of the septa of the pearly nautilus shell, threaded by the siphon hole in it, tied to their necks; and I have seen similar pieces of shell from Queensland, which are worn by the "gins" on Sandy Island, Maryborough, and strung as necklaces in the same manner. They prize them very highly, and it required much persuasion to induce them to part with those we have. The Miranhá Indians wear on holidays a large button made of the pearly river-shell, in a slit cut in the middle of each nostril;[*] and Sir Samuel Baker states that the women of the Shir tribe, living on the White Nile, make girdles and necklaces of small pieces of river mussel-shells, threaded upon the hair of the giraffe's tail, and that the effect is nearly the same as a string of mother-of-pearl buttons.[†] In an old book of recipes entitled the 'Druggist's Shop opened,' it says, "Mother-of-pearl is of an alkalious substance, and Cordial; good against Faintings, Swoonings, and Palpitations of the Heart, ... it is good against Melancholy, and Malign, and burning Fevers, Measles, Smallpox, &c."

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* Theophilus, 'Qui et Rugerus,' &c., translated by Robert Hendrie, chap. xcv. p. 391.

† 'A Naturalist on the Challenger,' by H. N. Moseley, p. 148.

‡ Idem.

A large species of *Haliotis* is eaten at the Cape of Good Hope and is prepared by pounding. No iron is allowed to touch it in preparation; it must be loosened from the shell with horn or wood implements, and then pounded with stone or wood, and finally stewed. It is considered that if iron touches the fish it becomes rigidly contracted, and hopelessly tough.[‡]

Through the kindness of Mr. Morton, of St. Clements, Jersey, I am enabled to give the following recipe for cooking the *Sea-ear*:—

"*To dress Sea-ears to Perfection.*—Take them out of the shells, and well scrub them; then let them simmer for two or three hours, until they are quite tender, after which they may be scalloped as an oyster, or put into the pan to brown with butter."

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[*] 'A Naturalist on the Amazon,' by H. Bates, vol. ii. p. 197.

[†] 'Albert Nyanza,' Baker, vol. i. p. 84.

[‡] 'A Naturalist on the Challenger.'

They require to be well beaten with a stick or hammer, to make them tender, if they are to be *fried;* and they are likewise sometimes pickled with vinegar.

Haliotis tuberculata is eaten in Italy, and is called *Orrechiale;* and *Orrechio di San Pietro* in the Adriatic; in Sicily, *Patella reale; Lapa burra* in Portugal; and in Spain, *Peneyras, Lampreas, Mangulinos, Joeles, Senoriñas, Cribas, Oreya de Mar,* and *Orella de Mar.*[*] The Germans call it the *Meerohr,* or *Ohrsnecke.*

Fam. LITTORINIDÆ.

LITTORINA.—PERIWINKLE.

Littorina littorea, Linnæus. *Periwinkle.*—Shell spiral, solid; whorls six or seven in number, covered with longitudinal striæ; apex very pointed; aperture nearly round and large; pillar lip flat, broad, and white; outer lip sharp, sometimes white and occasionally showing the colour of the exterior of the shell through. Interior of the shell a dark brown. Operculum dark horn-colour.

In Anglo-Saxon, the periwinkle is called *Sea-snægl,* or *Sea-snail;* in Ireland, the *Horse-winkle* and *Shellimidy forragy,* and at Belfast, *Whelks;* in Cornwall, *Gwean,* or *Guihan;* and in the north, *Corvins;* and the French give it the name of *Sabot,* or wooden shoe, as well as *Vignot* or *Vignette,* and *Bigorneau.* In Brittany it is called, as elsewhere observed, *Vrelin,* or *Brélin*;* and the Spanish name for it is *Minchas.* Few persons who have paid a visit to the seaside can have failed to remark this common shell, which, at low tide, may be seen crawling over the tangled masses of seaweed. Many pleasant hours do children pass in gathering basketfuls of periwinkles, taking them home and boiling them, and enjoying a hearty meal, with the accompaniment of good thick slices of bread-and-butter.

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[*] 'Exploracion Cientifica de las Costas del Ferrol,' M. de la P. Graells.

Periwinkles vary much in colour, some being of a dark olive-green, nearly black, or of a pale greenish-white, like the specimen figured; and others red or rufous-brown, with narrow bands of smoke colour. Varieties of form also occur, and I procured from Exmouth two curious specimens, with the whorls angular and the edges sharp, instead of rounded.

Athenæus, in his 'Deipnosophists,' mentions several kinds of periwinkles. He says, "Of the periwinkle, the white are the most tender, and they have no disagreeable smell, ... but of the black and red kinds the larger are exceedingly palatable, especially those that are caught in the spring. As a general rule all of them are good for the stomach, and digestible when eaten with cinnamon and pepper."

There is a large consumption of these little mollusks in London; and Billingsgate market is supplied from various parts of the British coast; the largest supply is in May and June, and they sell at one shilling a measure. Mr. Patterson, of Belfast, states, in his 'Introduction to Zoology,' that quantities of periwinkles are annually shipped from Belfast for London, and in 1861 the amount was 3394 bags, each containing about 3 bushels, and weighing 3½ cwt., so that the periwinkles exported in that year exceeded 10,000 bushels, and weighed nearly 600 tons.

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* 'British Conchology,' vol. iii. p. 371.

There are extensive periwinkle grounds at the mouth of Pagham Harbour, which are visited every low tide by women and children, who gather large quantities, and send them to Brighton and Worthing, and they are sold at 8*d.* per gallon. The Mersey flats supply good periwinkles.

In the Orkneys, at Stromness, I am told that they are collected in sacks, and sent south to the different markets. Professor Simmonds states that the annual consumption of periwinkles in London, in 1858, was estimated at 76,000 baskets, weighing 1900 tons, and valued at £15,000; further, that the inhabitants of Kerara, near Oban, gather them, and get sixpence a bushel for collecting them, and forward them from Oban to Glasgow, thence to Liverpool, *en route* for London. About thirty tons are sent up to London from Glasgow. Mr. A. Morton tells me that in Jersey the market is supplied with periwinkles brought from Southampton, those found in the island being very small; and occasionally a few pints of the *Trochus* appear in the market, and are sold as winkles. *Trochus zizyphinus*, and *Trochus cinerarius*, are said by M. le Docteur Ozenne to be eaten at Toulon, and on the coast of La Manche, and from experience I can recommend the common *Trochus crassas*, simply boiled and eaten as periwinkles, the flavour resembling the latter, and being quite as sweet and palatable. In Spain the name for the latter is *Caricoles franciscanos*, and *Minchas*.

Both *Trochidæ* and *Aporrhais pes-pelecani* are sold in the market at Palma, Majorca, for eating purposes; and in Italy the latter is also eaten, and is known at Venice and at Trieste, by the name of *Zamarugola*.*

The Chinese are very partial to *sea-snails*, and we read in a description given of a Chinese dinner, that the second course consisted of a ragoût made of them.

At Macao, these sea-snails are white, but at Ningpo they are green, viscous, and slippery, and by no means easy to pick up with chop-sticks. Their taste resembles the green fat of the turtle. It is curious that the most abundant shell found in the Scotch kjökkenmöddings is the periwinkle, and it is also met with in great numbers in the Danish shell-mounds.

Periwinkle Soup.—Take a pint and a half or a quart of periwinkles, wash them well, and boil them in a saucepan with a handful or two of salt, to enable you to pick out the fish easily. Put a little dripping or butter into a saucepan, with an onion or carrot, some chopped parsley, and a sprig of thyme, and fry until it becomes brown. Add a pint of water to this, and as soon as it boils put in the periwinkles (which have been previously picked out of their shells), with a little pepper and salt, and let the whole boil again for half an hour.

To boil Periwinkles.—It is only necessary to put them into a stew-pan with as much water as will prevent the bottom from burning, as the liquor oozing from them will be sufficient for the purpose; when the shells open wide enough to extract the fish, they will be sufficiently done.†

Note.—It is necessary to throw into the stew-pan a handful or two of salt with the periwinkles, otherwise half the fish could not be picked out. The "opening of the shell," refers, we conclude, to the falling out of the *operculum*.*

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* 'British Conchology,' vol. iv. p. 252.

† Murray's 'Modern Cookery Book.'

FAM. MURICIDÆ.

BUCCINUM.—WHELK.

BUCCINUM UNDATUM, Linnæus. *Whelk.*—Shell ovate, with eight whorls, more or less inflated, covered with transverse coarse striæ; waved or undulated obliquely, covered with a yellowish-brown epidermis; length about four inches. The aperture large, nearly half the length of the body whorl. Columella strong, pillar lip smooth, and bent back; interior white, very polished, sometimes lemon-colour, or orange; canal short; operculum of a reddish horn colour.

The shell of the common whelk, or buckie, the *Buccin ondé* and *Ran* of the French, varies very much in colour, being sometimes yellowish, without bands, and other specimens having chestnut spiral bands, or wavy blotches. White varieties are occasionally taken, and the shell figured, being dredged up in deep water, has still the rough olivaceous-coloured epidermis on it. It is found often on the beach, and is a great enemy to other mollusks, boring holes in their shells, and sucking the pieces of the fish within, by means of its spiny tongue. Dr. Harvey, in his 'Seaside Book,' says, "that the proboscis of the whelk consists of two cylinders, one within the other, the outer of which serves for the attachment of the motor muscles, and the general protection of the organ; while the inner, opening near the extremity with a longitudinal mouth, armed with two strong cartilaginous lips, encloses the tongue, and a great part of the œsophagus. The tongue is armed with short spines, and acting in concert with the hard lips, which can be opened or shut, or strongly pressed together, it forms a sort of rasp or auger, by which very hard substances are rapidly perforated; and then the tongue being protruded, the hooked spines with which it is armed, are admirably fitted for the collection of food."

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* M. S. L.

Whelks are taken in great numbers in wicker baskets baited with offal, and Pliny describes the taking of "purple fish" by a similar method, viz., in a kind of osier kipe, called *Nassis*, baited with cockles.* Billingsgate market is chiefly supplied from Harwich and Hull, and some of the steamers from the North bring six or seven tons at a time.† Mr. Charles Harding, of King's Lynn, informs us that the principal sources of the supply of whelks "on that part of the coast are as follows: Saltfleet, about twenty miles from Grimsby, Sherringham, near Cromer, Lynn Deeps, Docking Channel, Blakeney Coast, Wells, Boston Deeps, Brancaster, Thornham, and Hunstanton. The Lynn fishery supplies about 20,000 bags, or 1250 tons of *whelks* a year. . . . The average amount paid for them before the expense of boiling and carriage is about £10,000. The Great Grimsby fishery supplies about 150,000 wash of *whelks* annually. A wash contains 21 quarts and a pint, and the average price for the season would run about 3*s*. a wash, or a total of £22,500."‡

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* Pliny's 'Nat. Hist.' vol. ii. bk. ix. p. 445.

† 'Curiosities of Food,' p. 345.

‡ 'Molluscs, Mussels, Whelks,' &c., by Charles Harding. 'Papers of the Conferences held in connection with the Great International Fisheries Exhibition.'

Whelks are sold at 1*s*. 6*d*. to 2*s*. a measure; and are in season from August to September, though they are really good to eat at any time. Children are frequently seen buying a saucer of whelks in London in the spring; and the shellfish shops near Billingsgate market are well stocked with them. There are, as Woodward remarks, two different shellfish sold in London under the name of Whelks or Buckies, namely, the common *Buccinum undatum,* and the more prized *Fusus antiquus.* Whelks are very troublesome to the lobster-fishers, for they often devour the bait, and I have seen at St. Margaret's-at-Cliffe, on the Kentish coast, the lobster-pots drawn up, one after the other, baitless, and full of these greedy mollusks; most trying to the poor fishermen, especially when bait was scarce, and they had been obliged to walk some miles in the morning to purchase it.

On some parts of the coast the fishermen use the *Buccinum* for bait for the long-line fishing, and Mr. Smethurst, of Grimsby, says that when the fishermen get on to what is called the "shawl" of the Dogger Bank, in the spring, when the fish (such as cod, ling, halibut, skate and haddock), begin to accumulate in the warm weather, whelks are used as bait, and that when they fished at the north end of the Dogger, at the fall of the year, and in deeper water, lampreys were used along with whelks.*

The *Lamprey* (*Petromyzon fluviatilis*) is considered very valuable as bait, and in the winter and spring numbers are found in the river Trent, at Sawley, in Leicestershire, and are collected in baskets from the weirs to which they adhere, and sent off alive in large cans to Hull, and other places for the cod-fishery. This bait-fishing lasts about a fortnight.

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* 'Mollusks, Mussels, Whelks,' &c., by Charles Harding.

The fishermen know whelks by the following names, viz., Conches or Buckies; and at Youghal they call them *Googawns*, and *Cuckoo shells.*

In 'Popular History of the Mollusca,' by Miss Roberts, she mentions this species of shell being used in North Wales as trumpets by the farmers, for calling their labourers; and shells of a similar kind are also used in Muscovy and Lithuania by the herdsmen for collecting their cattle, horses, mules, goats, and sheep. The Italian herdsmen use them also. Dr. William Russell tells us, that at Casamicciola, in the Island of Ischia, morning, noon, and night, the air was filled with the monotonous notes of conch shells, sounded by the watchers over the vineyards and gardens, to scare away thieves and birds.*

In some parts of Staffordshire the farmers call up their cattle by means of a horn or trumpet. In Tahiti shells were also used as trumpets—a species of murex being the kind generally employed for that purpose. The largest shells were selected, sometimes a foot in diameter at the mouth. A perforation, about an inch in diameter, was made near the apex of the shell, in which was inserted a bamboo cane, three feet in length, secured by being bound to the shell, the aperture rendered air-tight by the outsides of it being cemented with a resinous gum from the bread-fruit tree. These shells were blown when any procession marched to the temple, and at other religious ceremonies; besides being used by the herald, and on board the native fleets. The sound is described as very loud, monotonous, and dismal.

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* 'Memories of Ischia,' 'Nineteenth Century,' Sept. 1883.

We are told that in the island of Tanna, in the New Hebrides, shell trumpets are blown as signals to the disease-makers, or sorcerers, to entreat them to stop plaguing their victims. "These disease-makers collected any *nahak*, or rubbish, that had belonged to any one, such as the skin of a banana he had eaten, wrapped it in a leaf like a cigar, and burnt it slowly at one end. As it burnt, the owner's illness increased; and if it was burnt to the end, he died; therefore, as soon as a man fell ill, feeling sure that some sorcerer was burning his rubbish, shell trumpets, which can be heard for miles, are blown as a signal to the sorcerers to stop, and wait for the presents which should be sent in the morning. When a disease-maker fell ill himself, he too believed that some one was burning his rubbish, and had his shells blown for mercy."[*]

The large chank-shell, *Turbinella rapa*, is a chief instrument of the Buddhists, who blow three times a day on this sacred shell, to summon believers to worship; and the same authority states that, according to the most ancient annals of the Cingalese, the chank-shell is sounded in one of the superior heavens of the demigods (similar to the conch-blowing tritons of Grecian Mythology) in honour of Buddha, as often as the latter wanders abroad on the earth.[†] Sir J. E. Tennent mentions that this chank-shell is exported from Ceylon to India as a wind instrument, and to be sawn into rings for anklets and bracelets; and also that a chank, in which the whorls were reversed, and ran from right to left, instead of from left to right, was regarded with such reverence, that a specimen formerly sold for its weight in gold, but that now one may be had for £4 or £5. The Chinese also hold reversed chank-shells in special veneration, and give high prices for them. They are kept in the Pagodas by the priests and used on special occasions, and the consecrated oil is kept in one of these sinistrorsal *Turbinellidæ,* with which the Emperor is anointed at his coronation.* From the earliest ages the Gulf of Manaar has been fished for chanks. Perforated conch shells, both a Triton (*T. variegatum ?*), and a large conical Strombus, perforated at the apex of the spire, not on the side of one of the upper whorls, as in the case of the Triton, are used by the natives of New Guinea, Humboldt Bay, or "Talok Lintju."—They are highly prized by them and make a booming noise.†

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[*] Turner, 'Polynesia,' as quoted in Taylor's 'History of Mankind,' p. 128.

[†] 'Voyage of the Novara.'

A species of Triton was used formerly by the Indians of South America as a trumpet, and a specimen was dug up at Cañete, in Peru. The shell was called "Bosina," on account of the sound produced by blowing into it resembling the roar of a bull, and it was used to announce the approach of any great man into a town. It was ornamented with tassels of human hair, and a leather strap of exquisite workmanship. Mr. Walter Shaw, of the Pacific Steam Navigation Company, at Callao, is said to have it in his possession.‡

Dr. Potter, in his 'Archæologia Græca,' vol. ii., states that the ancient Greeks used shells as trumpets as the Spaniards do at the present day; and that the first Grecian signals were lighted torches thrown from both armies, by men who were priests of *Mars*, and that these signals being laid aside, shells of fishes succeeded, which were sounded in the manner of trumpets, which in those days were not invented. Hence Theognis's riddle may easily be interpreted:—

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* Lubbock's 'Prehistoric Times,' vol. i. p. 222.

† 'A Naturalist on the 'Challenger.'

‡ 'Two Years in Peru,' by Thomas Hutchinson,' vol. i. p. 134.

> "A *sea-inhabitant* with *living* mouth
> *Spoke* to me to go home, though *dead* it was."

Triton's shell-trumpet is famous in poetical story, whence Ovid, speaking of Neptune, says:—

> "Already *Triton* at his call appears
> Above the waves, a *Tyrian* robe he wears;
> And in his hand a crooked trumpet bears.
> The Sov'reign bids him peaceful sounds inspire,
> And give the waves the signal to retire;
> His writhen shell he takes, whose narrow vent,
> Grows by degrees into a large extent."—*Dryden.*

And most of the poets mention this custom in their description of primitive wars.

Some of the North American Indian tribes hold sea-shells in great reverence, and it is said that the Omahas possessed a sacred shell which they transmitted from generation to generation. A skin lodge was built for it, and a man appointed as guardian, who resided in the lodge. It was placed on a stand and never allowed to touch the earth, and was concealed from sight by a number of mats made of strips of skins plaited. The whole formed a large package, and tobacco, roots of trees, and other objects were suspended from it. No one dared to open all these coverings to see the sacred shell, for if they attempted to look upon it, they were struck with instant and total loss of sight. The Indians took the shell with them to all the national hunts, and, before going any expedition against their enemies, consulted it. The medicine men seated themselves round the sacred lodge, the lower part of which was thrown up like a curtain, and the exterior mat was carefully removed from the shell, that it might have air. Some of the tobacco consecrated by having been long suspended to the coverings of the shell, was taken by the medicine men, and smoked to the "Great Medicine." During the ceremony every one listened most attentively, hoping to hear a sound proceed from the shell. At length some one imagined he heard a noise resembling a forced expiration of air from the lungs, and this was considered a favourable omen, and the tribe prepared for the expedition confident of success. If on the contrary the shell obstinately remained silent, the result of the expedition was regarded as doubtful.* The natives of Usambara, in South Africa, according to the late Mr. Keith Johnson, the leader of the East African Expedition, in 1879, attach marvellous powers to a large land shell, a species of *Achatina*, imagining that it can ward off all forms of evil and witchcraft, and for this reason it was held in high repute, and they place the dead shells in little enclosures of stone in their fields, and at the gateways of their villages, which are thus considered safe from the attacks of the enemy, or from disease.†

Dr. Troost, in an account of some ancient remains discovered by him in Tennesee, mentions the finding of a large conch shell (*Cassis flammea*), with the interior whorls and columella removed, so that nothing remained but the exterior portion of the shell, which was open in front, and in it was placed a rudely shaped idol, in the form of a kneeling human figure, made of clay with pounded shells. It was ploughed up in the Sequatchy Valley.*

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* Long, 'Expedition from Pittsburgh to the Rocky Mountains,' 1823, as quoted in 'Flint Chips,' by Edward T. Stevens, pp. 448, 449.

† 'Notes on the Geology of Asambara,' published in the 'Proceedings of the Royal Geographical Society,' Sept. 1879.

Conch shells are used in the manufacture of shell cameos, and are known as king, queen (*Cassis Madagascariensis*), and common conch-shells. Large quantities are exported from the Bahamas, and the beautiful pale pink pearl is found in the common species The value of shells exported from thence is £1200 per annum, and of pearls £3000 per annum, and it is also stated that the bait used in line-fishing is usually the conch, and that the fish are drummed up by striking two conch-shells together. Ground-bait is used at the same time, as in English rivers.†

The shells of *Strombus gigas* are used not only for making shell cameos, but also in the manufacture of porcelain, and it is stated that in 1850, about 300,000 of these shells were imported to Liverpool for the latter purpose. According to M. Beau, in the Island of Martinique the Creole cooks have recourse to *Strombus gigas* during the fasting season. The fish, according to its size, sells from twenty to forty centimes each. It is slightly sweet and a little heavy, and not suitable for invalids; but after being well beaten, rubbed with charcoal to take away the mucous, washed in several waters, the last saturated with lemon-juice, and cooked with butter and condiments, it is an agreeable dish, very nourishing, and easy of digestion. The Creole gardeners use the shells of the *Lambis* or *Strombus gigas*, to place round their flower beds, and they are also used for making lime, and the price per 1000 is from forty to fifty francs.*

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* 'Trans. Amer. Ethnol. Society,' vol. i. pp. 360, 361; and vol. iii. pp. 360, 364.

† 'Official Introduction to Bahamas Fisheries,' &c., by Rebus.

The manufacture of shell cameos is said to be of Sicilian origin, and has been carried on at Rome since 1805, and in Paris it was commenced by an Italian about twenty-five or thirty years ago, and a larger number of shell cameos are made in Paris than in Italy.†

The German name for the whelk is very appropriate, viz., *Trompetenschnecke,* or *Kinkhorn.* In Anglo-Saxon whelk is *Weolc,* but *weolc* is said to mean *that which gives the purple dye* (therefore it would apply better to the dog-whelk, *Buccinum lapillus,* or *Purpura lapillus,* which yields a purple dye); thus, *embroidered with purple* is *weolc-basn-hewen; scarlet dye* is *weolc-read.* In 1684 *Purpura lapillus,* the dog-whelk, was employed for dyeing linen in Ireland; and Neumann says that the purple-fish was also found on the coasts of Ireland, and that some persons made considerable profit by marking linen with its juices.

The shell, which is very hard, is broken by a smart blow, taking care not to crush the body of the fish within. After picking off the broken pieces, there appears a white vein or reservoir, lying transversely in a little furrow near the head. This being carefully taken out, and characters drawn with it, or its viscid juice squeezed upon linen or silk, the part immediately acquires, on being exposed to the sun, a pale yellowish green, which quickly deepens into an emerald green, then changes to blue, and at last to a fine purplish-red. If the cloth be now washed with scalding water and soap, and laid again in the sun, the colour changes to a beautiful crimson, which suffers no further alteration from sun, or air, soap, alum, alkaline leys, or any of the substances used for assaying the permanency of colours.

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* 'De l'Utilité de certains Mollusques Marins de la Guadeloupe et de la Martinique,' par M. Beau.

† 'Dictionary of Terms in Art,' by F. W. Fairholt, F.S.A.

The juice of the purple-fish receives no colour itself, and communicates none to silk or linen, without exposure to the sun. It seems to be the light, and not the heat, of the sun, that calls forth the tincture; for when the cloth is covered with thin opaque bodies, which transmit heat without light, no colour is produced, while transparent ones give no impediment to its production. The juice, itself, in close glass vessels becomes presently purple in the sun.* Lister, in 1686, mentions the discovery of a shellfish, *Purpura Anglicana*, on the shores of the Severn, in which there is a vein containing a juice giving the delicate and durable tincture of the rich Tyrian purple. A writer in the 'Annual Register' for 1760, says that, being "at a gentleman's house in the west of Ireland, he took particular notice of the gown of the lady of the house. It was a muslin flowered with the most beautiful violet colour . . . . She told me it was her own work, and took me to the seaside, where she gathered some little shells; . . . beating them open and extracting the liquor with the point of a clean pen, she marked some spots directly before me." He adds:—"I suppose a hundred fishes would not produce a drop as large as a pea." Richard of Cirencester also mentions as a production of Britain, "shells from which is prepared a scarlet dye of the most beautiful hue, which never fades from the effect of sun or rain."

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* 'Neumann's Chemistry,' p. 510; the Memoirs of the French Academy for 1730. See 'Philosophical Transactions,' No. 178.

It is also stated in the 'Athenæum' of July 20, 1850, that the Nicaraguan Indians use a purple dye prepared from shellfish.

Pliny says that there are two kinds of fish that produce the purple dye, the *Buccinum*, and the *Purpura*, purple or pelagia.* *Murex trunculus* is generally considered to have yielded it, but *Murex brandaris* was also used, and most certainly at Tyre, as we shall presently read.

We all know the story of the discovery of the Porphyra shellfish, by the dog of a Tyrian nymph loved by Hercules; which having picked up some of these shells, and crushed them with its teeth, its mouth became stained with purple dye. It is scarcely probable that it *could* crush the strong hard shells of the *Buccinum*, or *Murex*, but it might easily break the beautiful fragile shell of the *Helix ianthina*, which we know yields a purple juice; for though a fable, the above was intended to relate a possible event; and we are told by Sir Gardner Wilkinson, that the *ianthina* is common on the coast about Tyre and Beyrout. And though so small, being only the size of a small snail, three-quarters of an inch in diameter, the water becomes completely coloured all around it, whenever it is alarmed, and throws out its purple liquid.†

Athenæus speaks of many different kinds of purple-fish, some of them of large size, like those which are found near Segeum and Lesteum; and some small, like those found in the Euripus, and around Caria. According to Pliny, the juice of the *Buccinum* was considered inferior by itself, but mixed with that of the *Pelagia* it blended well, and gave a bright lustre to the colour. The proper proportions for dyeing fifty pounds of wool were 200 pounds of juice of the *Buccinum,* and 111 pounds of *pelagium,** and this mixture produced a beautiful amethyst colour. The Tyrian hue was given to wool by soaking it in the juice of the *Pelagia,* while the mixture was in a raw state, and afterwards dipping it in the juice of the *Buccinum.* The best quality was of the colour of blood, of a blackish hue to the sight, but of a shining appearance when held up to the light.† The "conchyliated" colour comprehended a variety of shades, viz., that of the heliotropium, as well as one of a deeper colour; that of the mallow inclining to a full purple, and that of the late violet; this last being the most vivid of all the "conchyliated" tints.‡

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* Pliny, 'Nat. Hist.' vol. ii. bk. ix. chap. 67.

† See note, Rawlinson's 'Herodotus,' vol. ii. bk. iii. chap. 20, p. 415.

The best purple in Asia was that of Tyre, and the peculiar symbol of that city was the whelk, or *purpura,* and it appears on the Tyrian medals.§ Strabo remarks that this city was rendered unpleasant as a place of residence, owing to the great number of its dyeing-works.

In the days of Ezekiel, purple was imported by the Tyrians from the Peloponnesus, but they soon learned to extract the dye for themselves. A modern traveller, Mr. Wilde, observed at Tyre numerous round holes cut in the solid sandstone rock, in which shells seem to have been crushed. They were perfectly smooth on the inside, and many of them shaped like a modern iron pot, broad and flat at the bottom, and narrowing towards the top. Many of these were filled with a breccia of shells, and he supposes that all the shells were of one kind, probably *Murex trunculus*.*

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* *Pelagia* was the shellfish, and *pelagium,* the juice, or colour, from it.

† Pliny, 'Nat. Hist.' vol. ii. bk. ix. chap. 62 (38).

‡ Ibid. vol. iv. bk. xxi. chap. 22 (8).

§ 'Heraldry of Fish.'

Dr. Tristram in 'The Land of Israel,' mentions finding traces at Tyre of its ancient trade and manufactures, and that amongst the rubbish thrown out in the excavations were numberless fragments of glass, and whole "kitchen-middens" of shells, crushed and broken, the owners of which had once supplied the famed Tyrian purple dye. All these shells were of one species, and that one of the most plentiful on the coast, the *Murex brandaris*. It has frequently been stated that *Murex trunculus* is the true original of the Tyrian dye, and it is very possible that it may have been also used for that purpose. But Dr. Tristram adds, "While we noticed only a few broken specimens of *M. trunculus* scattered about, the compact masses of broken shells, and which, therefore, had most probably been used in manufacture, and not merely for food, were exclusively of the former species."

In Africa, the island of Meninx (now called Gerbee, in the Gulf of Cabes) was famed for its purple, as well as parts of Gætulia that border on the ocean; and in Europe, the best came from the coast of Laconia.

Cornelius Nepos speaks of the *Tarentine* red; and Hardouin remarks that in his time were still to be seen the remains of the ancient dyeing-houses at Tarentum, and that vast heaps of the shells of the *Murex* had been discovered.*

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* W. Smith, 'Dictionary of the Bible,' vol. iii. p. 1581, article 'Tyre.'

Aufrère, in 1789, describes a hill called Monte Testaceo, behind the Alcantarine Convent, at Tarento, consisting chiefly of the shells of *Murex brandaris* which were supposed to have produced the purple dye,† and according to Dr. Bizio, the Tyrian purple was produced from this *Murex brandaris,* and the amethystine purple from *Murex trunculus.* Romulus employed the purple dye for the *trabea.* It was purple and white, something similar in cut to the *toga,* and was the royal robe worn by the early kings. Servius mentions two other kinds of *trabea* besides the one already described, one wholly of purple, which was sacred to the gods, and another of purple and saffron, which belonged to augurs. Julius Cæsar appears to have been the first of the Roman emperors who wore the *toga* entirely of purple.

As long as the Empire of the East lasted, this dye continued to be appropriate to imperial use. Its manufacture seems to have expired with the capture of Constantinople by the Turks, for, in 1464, Pope Paul II. authorized the substitution of scarlet for purple in the vestments of the church.‡

The best purple dye was stated by the ancients to be exceedingly durable; and when Alexander took possession of Susa, he found amongst its treasures 5000 talents in weight of purple cloth, from Hermione in the Peloponnesus, which had been laid up there for 180 years, and yet retained all the freshness and brilliancy of its original colour. It was said to owe its durability and freshness to some use of honey in the process of dyeing.*

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* Pliny, 'Nat. Hist.' see note, vol. ii. bk. ix. ch. 63 (39).

† Aufrère's 'Travels.'

‡ Schmidt, 'Forschungen,' p. 209, as quoted in 'Phœnicia,' by John Kenrick, M.A.

In 'Religious Ceremonies,' p. 309, we are told that the Pope celebrates Mass in Lent, Advent, and all eves on which fasting is required, in a purple robe.

Other shellfish produce purple dyes; amongst them *Aplysia hybrida*, and I have dyed a piece of linen with the beautiful purple liquid which it emits, but it faded quickly.

Dr. Darwin mentions a large *Aplysia* which is common at the Cape de Verd Islands, five inches long, and of a dirty yellowish colour, veined with purple, and when disturbed, it emits a very fine purplish-red fluid, which stains the water for a space of a foot round.

The *Dolabella Rumphi* is stated by Mr. Nicholas Pike to yield a deep lilac liquid, and from one specimen which he found on Barkly Island, off the Island of Mauritius, he procured nearly half an ounce of the viscous liquid, which retained its colour even when dry.†

Lima squamosa secretes a liquid of a blood-red colour.‡ It is found at Mahon, Minorca.

Scalaria communis yields a purple liquor destructible by acids, and *Planorbis corneus*, a purplish fluid, but it cannot be made of any use, though Lister tried several experiments with the vain hope of being able to fix it.

In Spain, *Murex trunculus* is eaten, and is called, *Corns, Corn blanc, Caracoles, Cornias, Bois,* and *Bucios;*

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* Plutarch, Alex., c. 36, as quoted in 'Phœnicia,' by John Kenrick, M.A.

† 'Subtropical Rambles,' by Nicholas Pike, p. 277.

‡ 'Journal de Conchyliologie,' 1867; vol. xv. p. 265.

and *Purpura lapillus* is said by M. Cailliaud to be used for food in the spring (after the fish have spawned) by some of the inhabitants of St. Michel-Chef-Chef, in the department of the Loire Inférieure. In March, 1868, I saw *Purpura lapillus* sold at Hastings ready boiled for eating at 1*d.* per pint; but the name given to them, was not one to encourage a trial, viz., *Man-suckers;* though I was assured they were very good, and tasted like periwinkles. The Spanish names for it are *Minchas*, and *Corn de fel.*

The Almond Whelk, or Red Whelk, as it is sometimes called—*Fusus antiquus*—is eaten in Liverpool, and great quantities are taken on the Cheshire coast. In Dublin the fishermen use them principally for bait for the larger kind of fish, such as cod and ling, and only occasionally eat them, boiled or pickled. The beautiful large white variety is dredged off the Irish coast. My largest specimen from Dublin measures six and a half inches in length, and three and a half inches in breadth, and Dr. Jeffreys saw the shells used as lamps in the Shetland Isles by the northern fishermen. They are suspended from a nail in the wall or ceiling of the hut, by means of a piece of string, which is fastened round the shell in a triangular form. The inside is filled with fish-oil, and a wick of cotton or tow is put into the canal at the extremity of the mouth.* The Chinese use a large shell, a species of *Fusus*, for their fog-horns.

In 'Antiquitates Culinariæ,' it is said that at the enthronization feast of William Warham, Archbishop of Canterbury, in 1504, 8000 whelks were supplied at five shillings a thousand, and they were served up as an accompaniment to sturgeon; and amongst the dishes forming part of the *second course,* we read of *Sturgeon in foyle with welkes.*

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* 'British Conchology,' vol. i., Introduction, p. lxviii.

In heraldry we find whelks used, and the arms of Sir John Shelley, of Maresfield, in Sussex, are sable, a fess engrailed between three whelk-shells or. The Shelleys of Lincolnshire bear, argent a chevron gules, between three whelks sable;* and the crest of the Venables, of Cheshire, is a wyvern gules, issuing from a whelk-shell argent; and many other examples might be given.†

A *buccinum,* or *whelk,* with a figure rising out of it, or rather looking out of it, is sculptured on the font in St. Clement's Church, Sandwich.

It is said that the eider-duck when it has not more than one or two eggs in its nest, places a shell, *Buccinum glaciale,* beside them. The usual number of eggs is from five to six. Western Norway Island, off the coast of Western Spitzbergen, is a well-known place where the eider-duck breeds in great numbers.‡

Dublin Method of Cooking Whelks.—Cleanse them well, boil them till they can easily be taken from the shell, and then fry them with plenty of *fat* or butter, till they are brown.

Whelk Soup.—Take two onions and cut them into small dice, fry them in a stew-pan with some butter; shake the pan well for a few minutes, add five heads of celery, two handfuls of spinach, two cabbage-lettuces cut small, and some parsley. Shake the pan again, put in two quarts of water, some crusts of bread, a teaspoonful of pepper, and a blade or two of mace. Let this boil gently for an hour. Boil the whelks, take them out of their shells, and fry them a good brown, and then add them to the soup, and let the whole boil a few minutes, then serve.*

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* Burke's 'General Armorie.'

† Fairbairn's 'Crests of Great Britain.'

‡ Nordenskjöld's 'Arctic Voyages in 1878-9.'

Another way of making Whelk Soup.—Wash the whelks well, boil them and pick them out of the shells. Put an ounce of butter or dripping, with some finely chopped parsley, an onion, a little pepper and salt, into a saucepan, and fry it until it becomes brown, adding a little flour. Then to this add a pint of water or a pint and a half of milk, and when it boils, place in the whelks and a teaspoonful of anchovy. Let it boil again for half an hour, then serve.

To dress Whelks.—Boil them till quite tender, then eat them with vinegar and pepper.

At Marseilles I have seen the large *Triton nodiferus* sold in the streets ready boiled for eating; but it did not look a tempting dish, and appears to be appreciated only by the lower classes.

FAM. HELICIDÆ.

HELIX.—SNAIL.

HELIX POMATIA, Linnæus. *Vine Snail.*—Shell globular, strong, large, covered with coarse longitudinal striæ, five volutions, convex; spire short, and the apex blunt; pale cream-colour, with rufous bands; the columella arched; and of a pale purplish-pink; the outer lip dark reddish-brown; mouth almost round.

HELIX ASPERSA, Linnæus. *Garden Snail.*—Shell opaque, nearly globular, four to four and a half volutions, the last much larger, occupying nearly two-thirds of the shell; mouth nearly ovate; spire short, with a blunt point; the outer lip white, with dark-brown bands or mottlings, subject to great variety of markings; epidermis yellowish-green, and thick.

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* 'Old Cookery Book.'

Helix nemoralis, Linnæus. *Wood Snail.*—Shell imperforate, globular, whorls five, more or less covered with minute spiral striæ; mouth pyriform; inner margin of lip of a rich dark chocolate-brown; in variety *hortensis* mouth has a white lip. Colours various; yellow, yellow with brown bands, pink, pink and brown, dark chocolate, with darker bands of the same colour, and white.

Helix pisana, Linnæus. *The Banded Snail.*—Shell rather depressed, and nearly globular, of a pale yellowish-white, with spiral bands of a dark chocolate-brown, which are not always joined together, giving the shell a speckled or streaky appearance; whorls five or five and a half; mouth pink and rather large. Varieties nearly white and also others with the bands of a chestnut colour, and scarcely to be distinguished.

Helix pomatia is the largest of our land snails, being about one and three quarters inches in breadth and length, and is found in Kent, Surrey, Gloucestershire, and other southern counties; and a specimen was met with some time since in a lane near Exmouth, which I believe to be a new locality for it. Some curious reversed specimens are occasionally found in France, and one variety particularly struck me, which was exhibited in the Museum at the Jardin des Plantes, in Paris. It was something the shape of a *Buccinum*, the whorls rounded and swollen, and six in number. A beautiful white variety is also found, but rarely, in the environs of Clermont. It is supposed by some to have been originally introduced into England by Sir Kenelm Digby, as food or medicine for his wife, who was suffering from consumption; others say that the Romans introduced it; but Dr. Jeffreys believes it to be indigenous, and observes (in his 'British Conchology') that it is not found in many parts of England and Wales where the Romans built cities or had important military stations.

Archæologists often find snail-shells in great abundance, however, in excavating on the sites of Roman stations, and at Lymne, in Kent (Portus Lemanis), Mr. Wright has seen them dug up in masses almost as large as ordinary buckets, and completely embedded together;* and I have seen in the Museum at Shrewsbury, the shells of *Helix aspersa,* with those of *Fusus antiquus, Buccinum undatum, Cardium echinatum,* and of the oyster, which had all been found at Wroxeter. In France, also, empty shells of the *Vine snail, Helix pomatia* have been met with amongst the ruins of Roman villas, in the neighbourhood of Auch, Agen, and in Provence; and in the Danish "kjökkenmöddings," *Helix nemoralis* has been found in small quantities.

As a medicine, snails were recommended for other diseases besides consumption, and *Helix aspersa,* the common garden snail, was generally used.

In a quaint old book, entitled 'A Rich Storehouse or Treasurie for the Diseased, wherein are many approved medicines for divers and sundrie diseases which have longe been hidden, and not come to light before this time; first set forth for the benefit of the poorer sorts of people that are not of abilitie to goe to the Physicians,' by Master Ralph Blower, we find:—"Snales which bee in shells, beat together with bay salt and mallowes, and laid to the bottomes of your feet, and to the wristes of your hands, before the fit commeth, appeaseth the ague." Again:—"Take twenty garden snails and beat them (shelles and all) in a mortar, until you perceive them to be come to a salue; then spread a little thereof upon a linnen cloath, and lay it to the place grieued, and when one plaister is dry, then take that of, and put on another, and it will both heale the sore place and draw it." For corns, he recommends "blacke sope and snailes, of each a like quantitie, stampe them togither, and make plaister thereof, and spread it upon a piece of fine linnen cloth, or else upon a piece of white leather, and lay it upon the corne, and it will take it cleane away within seven dayes space."

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* 'The Celt, the Roman, and the Saxon.'

"*Another soueraigne Medicine for a Web in the eye.*—Take a good quantitie of snailes with their shells upon them, and wash them very well, and then distill them in a common stillatorie; then take of the galles of Hares, Red currall, and Sugar-candie, and mingle them together with the said water, and then distill them againe; then take the same water, and put it into a glasse or viall, and when you will use it, take a drop thereof, and put it into your eyes both morning and evening, and it will help you."

Dr. William Salmon's recipe for a Web in the eye.—"To remove this offence of sight, take the shell-snails and burn them to powder, beat it fine, and sift it, add to it the powder of cuttlebone; put these into alum-water where honey is dissolved, and shake them about: when the water is thick with the powder, drop some of it into the eye with a feather, keeping the lids closed a while and turn your eye to and fro, that it may fret off the film or skin that hinders the sight, and in often so doing it will wear it away."

Dr. Fuller, in his 'Pharmacopœia,' recommends snails in scorbutic affections, and gives the following recipe for a consumption :—

" *Snail-water Pectoral.*—Take snails beaten to a mash with their shells, three pounds; crum of white bread, newly baked, twelve ounces; nutmeg, six drams; ground-ivy, six handfuls; whey, three quarts; distill it in a cold still, without burning. If I would have this water not so absolutely cold, I add brandy half a pint or a pint. This water humects, dilutes, supplies, tempers, nourishes, comforts, and therefore is highly conducive in hectic consumptive emaciations."

In Dr. John Quincy's 'Pharmacopœia Officinalis, or a complete English Dispensatory,' are the following :—

"*Decoctum Limacum, or Decoction of Snails.*—Take garden snails, cleansed from their shells, number twelve; red cows' milk, new, two pounds; boil to a pound; and add rose-water, an ounce; sugar-candy, half-an-ounce.

"It will be very difficult to boil this so long as to waste one-half, because it will be apt both to run over and burn to the bottom, and therefore must be stirred all the while; this quantity is ordered to be drank every morning, and is a noble restorative in consumptions, especially for young people."

"*Decoctum Antiphthisicum, a Decoction against Consumptions.*—Take ox-eye daisy flowers, dried, a handful; snails, washed clean, numb. three; candied eryngo-root, half an ounce; pearl-barley, two ounces; boil in spring-water from a pound to half a pound, and then strain for use.

"This brings a supply of such soft and inoffensive nourishment, as gives no trouble to a weak constitution, and therefore is of service in consumptions, hectic fevers, etc., etc. The patient must drink four ounces of this warm, with an equal quantity of milk, twice a day."

In Ireland the snail, or "shellimidy," was recommended for many diseases, and "a water distilled from shell-snails in canary wine, in the month of May, is a great restorative in consumptions; also strengthens the liver; outwardly applied it is a cosmetic; it beautifies the face, and the volatile oil and spirit extracted from snails resist poison, open all manner of obstructions, cure the pleurisy, asthma, most disorders of the lungs, and, after a wonderful manner, the consumption. Dose of the volatile salt, from grains six to twelve; of the spirit, from thirty to forty drops."*

The following recipes are from an old manuscript book; but though snails might be tolerated, I doubt any person having sufficient courage to try them with the addition of earthworms!

"*For a Consumption.*—Take twelve snails, better house snails, and twelve earthworms, clean washed; boil them in a pint of new milk to half a pint, then pour it on one ounce of eryngo-root. Take some every night and morning."

"*For a Consumption.*—Twenty-four garden snails, two sheep's trotters, half an ounce of comfrey-root, one quart of spring-water, a quart of milk; boil all together till reduced to half the quantity: take a cup of this every night and morning."

An excellent Remedy for a Consumption.—Take twenty snails, and a handful of broad daisies, and put in a quart of water, and gently boil it to a pint, take a spoonful every morning in some milk.†

"*Water against a Consumption*—Take a pound of currants, and of hart's tongue, liverwort, and speedwell, of each a large handful; then take a peck of snails, lay them all night in hyssop, the next morning rub and bruise them, and distill all in a gallon of new milk; sweeten it with sugar-candy, and drink of this water two or three times a day, a quarter of a pint at a time; it has done good."*

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* 'Zoologia Medicinalis Hibernica,' by John Keogh.

† 'The Housekeeper's Pocket-book,' by Mrs. Sarah Harrison of Devonshire (1751).

An admirable and most famous snail water.—Take a peck of garden snails, wash them well in small beer, and put them in a hot oven till they have done making a noise, then take them out, and wipe them well from the green froth that is upon them, and bruise them, shells and all, in a stone mortar; then take a quart of earthworms, scour them with salt, and slit them, and wash them well with water till clean, and in a stone mortar beat them to pieces; then lay in the bottom of your distilled pot, angelica two handfuls, and two handfuls of celandine upon them, to which add two quarts of rosemary flowers, bearsfoot, agrimony, red dock roots, bark of barberries, betony, wood sorrel, of each two handfuls, rue, one handful; then lay the snails and worms on the top of the herbs and flowers; then pour on three gallons of the strongest ale, and let it stand all night. In the morning put in three ounces of cloves beaten, six pennyworth of beaten saffron, and on the top of them six ounces of shaved hart's-horn; then set on the limbeck, and close it with paste, and so receive the water by pints, which will be nine in all; the first is the strongest, whereof take in the morning two spoonfuls in four spoonfuls of small beer, and the like in the afternoon; you must keep a good diet, and use moderate exercise to warm the blood.

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* 'The Complete Cook,' by James Jenks.

This water is good against all obstructions whatsoever. It cureth a consumption and dropsie. It may be distilled with milk for weak people and children, with hart's-tongue and elecampane.*

"*An excellent Snail-water.*—Take of comfrey and succory-roots, of each four ounces, liquorice, three ounces, the leaves of hart's-tongue, plantain, ground-ivy, red-nettle, yarrow, brooklime, watercresses, dandelion, and agrimony, of each two large handfuls; gather these herbs in dry weather, and do not wash them, but wipe them clean with a cloth. Then take five hundred snails, cleansed from their shells, but not scoured, and of whites of eggs beaten up to a water, a pint, four nutmegs grossly beaten, the yellow rind of one lemon and one orange. Bruise all the roots and herbs and put them together, with the other ingredients, in a gallon of new milk, and a pint of Canary; let them stand close covered, forty-eight hours, and then distill them in a common still, with a gentle fire. This quantity will fill a still twice. It will keep good a year, and is best when made spring or fall; but it is best when new. You must not cork up the bottles for three months, but cover them with paper. It is immediately fit for use; take a quarter of a pint of this water, and put to it as much milk warm from the cow, and drink it in the morning, and at four o'clock in the afternoon, and fast two hours after. To take powder of crab's eyes with it, as much as will lie on a sixpence, mightily assists to sweeten the blood. When you drink this water, be very regular in your diet, and eat nothing salt nor sour."†

"*Mock Asses Milk.*—One pound of snails layed in salt and water for two days, and then cleaned and washed, a quarter of a pound of barley, three pennyworth of eryngo-root; boil all the above together, till they become a jelly, and let them be strained off. Half a pint night and morning for a grown person, and quarter of a pint for a child. It must be taken warm, and a little milk and sugar added after it is warmed. It is an excellent remedy for consumption and weakness."

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* 'The Complete Cook.'

† 'A Queen's Delight,' &c., 1658.

"*To make Snail Broth.*—Take five snailhorn snails, clean them well with salt and water. Bruise them in a marble mortar, put them into a basin of weak mutton, or veal, or chicken broth; when boiled about five minutes, strain them off into your basin. When repeated, take ten, fifteen, or any *number* of snails to twenty, as the person's stomach can bear with."*

A modern authority, Francatelli, gives the following recipe in his 'Cook's Guide':—

"*Mucilaginous Broth.*—Put a cut-up chicken, a pound of veal cutlet, and a calf's foot into a stew-pan, with three pints of water, boil and skim; then add a dozen crayfish and a pint of *garden snails*, both bruised and raw, in a mortar; add also a handful of balm, burrage, and chervil, three ounces of prepared Iceland moss, and a small quantity of salt. The broth must boil very gently by the side of the fire for about two hours, without much reduction, and when done is to be strained into a basin for use."

Note.—This is a powerful demulcent, and is much in use in France, in cases of phthisis, catarrh, bronchitis, etc., etc.

Oil of Black Snails—Spanish Cure for Consumption.

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* Old MS. B.

—Make a flannel bag of a triangular shape (like a jelly bag), fit the corner into a wide-mouthed bottle, fill it with *black snails*, in the hottest time of the year; tie up the mouth, and suspend the bottle and bag on a wall, the hottest you can find. The proper place is the sunny angle of a wall, where the south and west sun fall longest. The snails will give out a large quantity of frothy liquid, which will drain into the bottle; cork it close for use, and give a teaspoonful at a time, three or four times a day, in milk or any other liquid.

The common garden snail, *Helix aspersa,* also gives out a frothy liquid, which might be collected in the same manner, and used with benefit by consumptive patients. The friend who kindly gave me the above recipe tells me that these *black snails* resemble *Helix aspersa,* but the colour is much darker, and at a distance looks almost black. In an old English medical book, dated 1756, syrup of snails is recommended for coughs, weaknesses, etc., and is made by hanging snails up in a bag, with some sugar, by which means the syrup drops into a vessel placed to receive it. In Sussex the old women thread the snails through the shell and the animal, and hang them up till they exude the frothy liquid, which they collect and give as a remedy in coughs and colds.

For a Swelling on the Joints.—Take three handfuls of shell snails (off a rabbit-warren), pound them very fine, and mix them with some new milk (not too thin); put them between two pieces of fine linen cloth, and apply them on the part. This is to be applied once a day, or as often as it gets dry.

Popular Spanish Cure for the Headache.—Make a poultice of bruised snails. They must be broken up with their shells and put into a piece of linen folded four times so as to make it thick, dip it in brandy, and squeeze it tolerably dry; then apply it to the forehead.

Pliny also recommends a plaster of *slugs*, cut up and pounded, and applied to the forehead.

M. Figuier remembers, when studying botany in the garden of the School of Medicine, as a youth, at Montpellier, seeing the celebrated tenor singer, M. Laborde, every morning partake of live snails, as he was suffering from a weak chest. M. Figuier assisted in finding the snails in the holes in the garden wall, and under leaves, and M. Laborde, crushed the mollusks with a stone, picking off the pieces of broken shells, then, rolling the fish in powdered sugar, swallowed them. The remedy was evidently efficacious, as, twenty years later, M. Laborde still held his position as tenor, and sang at the theatre at Brussels, and also at the opera in Paris.*

In the 'Meddygon Myddvai,' published by the Welsh MSS. Society, the following recipes are found:—

"*For an Impostume* (Whitlow).—Take a snail out of its shell, and bruising it small, pound it into a plaster and apply it to the finger; it will ripen and break it, and it should then be dressed like any other wound. *For a patient who is burnt,* it recommends a plaster of mallows, snail-shells, pennywort, and linseed pounded, and applied until the part is healed without even uncovering it; and again, it says that an eye ointment can be made of a black snail in the month of May, roasted in the embers, preserving the oil till required, and anointing your eye therewith with a feather."

In olden times it was supposed that the small grits of sand found in the horns of snails, introduced into hollow teeth, removed the pain instantaneously; and that the ashes of empty snail-shells mixed with myrrh were good for the gums (Pliny's 'Nat. Hist.' vol. v. p. 431.)

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* 'La Vie et les Mœurs des Animaux,' p. 386.

Pliny also recommends "snails beaten up raw and taken in three cyathi of warm water for a cough," and a snail diet for internal pains, the snails to be cooked as follows:—"They must first be left to simmer in water for some time without touching the contents of the shell; after which, without any other addition, they must be grilled upon hot coals, and eaten with wine and garum (a kind of fish sauce)."* Again, "that a kind of small elongated snail, dried upon tiles in the sun, and reduced to powder, then mixed with bean-meal in equal proportions, forms a cosmetic for whitening and softening the skin."

In Austria, the teeth of snails are worn as amulets, and are considered an invaluable safeguard against convulsions, if worn round the neck of a baby; and Miss Eden says, "that there was only one person in Salzburg, who could extract the teeth of snails."†

Mrs. Bury Palliser states, that pounded snails worn round the neck are considered a cure for fevers in Brittany; and that near Guingamp is a small chapel dedicated to St. Leonard, the patron saint of prisoners, which was built by Charles of Blois on his return from his captivity in England, and that, in the month of May, those who are attacked with fever repair to St. Leonard, to seek upon the walls of the chapel, or on the calvary attached to it, *snails* as cures for their malady. They must gather them themselves, pound them and put them into little bags, which are worn round the neck. As soon as the fever leaves them, they bury their bags at the foot of the walls of the chapel, and if they fail to perform this ceremony, the fever returns. Mrs. Palliser adds, "we found quantities of these bags made of course linen, lying half-buried under the walls of the chapel." *

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* Pliny, 'Nat. Hist.' vol. v. chap. xv. bk. xxx. p. 437.

† 'My Holiday in Austria,' p. 30.

I have been told that a large trade in snails is carried on for Covent Garden market in the Lincolnshire Fens, and that they are sold at 6*d.* per quart, and upon further inquiry I find that snails are still much used for consumptive patients and weakly children; also as salves for corns put between ivy leaves; and as food for birds. In the manufacture of *cream* they are also much employed, bruised in milk and boiled, and a *retired* milkman pronounced it the most successful imitation known.

It appears that not only are the *Helicidæ* nourishing to the human species, but that they have a beneficial effect upon sheep, giving a richness to the flavour of the mutton. Dr. Jeffreys, in his 'British Conchology,' quotes the following passage from Borlase's 'Natural History of Cornwall:'—"The sweetest mutton is reckoned to be that of the smallest sheep, which usually feed on the commons where the sands are scarcely covered with the green-sod, and the grass exceedingly short; such are the towens or sand-hillocks in Pirau-sand, Gwythian, Philne, and Senan Green, near the Land's End, and elsewhere in like situations. From these sands come forth snails of the turbinated kinds, but of different species, and all sizes, from the adult to the smallest just from the egg; these spread themselves over the plains early in the morning, and whilst they are in quest of their own food among the dews, yield a most fattening nourishment to sheep."

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* 'Brittany and its Byeways.'

Birds also are great eaters of snails. Lister mentions the partiality of thrushes for *Helix nemoralis;* and owing to the scarcity of this species in South Derbyshire, I have twice brought a large basketful of live specimens from Staffordshire, and turned them out, hoping they would thrive and increase; but I have not only found the dead and broken shells, but constantly disturbed the feathered depredators themselves at their repast. *Helix arbustorum* I have also tried, but with the same success; they fared no better than the other kind.

There is a true saying "that there is nothing on earth so small that it may not produce great things."* Thus, the sacred geese at Rome by their cackling awoke Marcus Manlius, and thereby saved the Capitol from the Gauls, who were attempting by night to surprise the garrison; and even such insignificant creatures as snails were the cause of the following disaster to a Numidian king:—A castle on a lofty and steep rock, into which Jugurtha had carried all his treasures, had long been besieged in vain by Marius, when a Ligurian in the Roman army, climbing up the rocks in quest of snails, was led to continue his search for them, till he had nearly reached the summit, and thus found that the ascent was practicable; and on reporting this fact to Marius, having been ordered to lead a chosen band up the same part of the rocks, he and his comrades so alarmed the garrison by their unexpected appearance that they gave up the castle to the besiegers.

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* 'Proverbial Philosophy.'

The Romans were very partial to snails as an article of food, and fed them till they grew to a large size. Several sorts are mentioned by Pliny, and they were all kept separate; amongst others, white ones that were found in the neighbourhood of Rieti. He describes the Illyrian snails as the largest (probably *Helix lucorum*, or *Helix cincta*), the African as the most prolific; others from Soletum, in the Neapolitan territory, as the noblest and best. He also speaks of some as attaining to so enormous a size that their shells would contain eighty pieces of money of the common currency,* that is to say, eighty quadrantes, the quadrans being a small copper coin three-quarters of an inch in diameter, about the size of a new sixpence, and one-sixteenth of an inch thick. This statement of Pliny's is really not so improbable as may appear at first sight, for on trying how many sixpences a usual-sized specimen of our largest snail, *Helix pomatia*, would hold, I find that about forty could easily be put into it; and very fine specimens are to be found in the neighbourhood of the Mont Grenier, in Savoy, which would certainly hold more than forty. In the museum of the Jardin des Plantes, in Paris, there are two specimens of this *Helix* from Moldavia, nearly twice the size of the usual ones, measuring about two and a quarter inches in breadth, and which would easily hold eighty sixpences.

Fulvius Hirpinus studied the art of fattening them with so much success, that some of his snails would contain about ten quarts. Pliny in his letter to Sextus Erucius Clarus, says (complaining of his not fulfilling his engagement to sup with him) :—"I had prepared, you must know, a lettuce apiece, three snails, two eggs, and a barley-cake, with some sweet wine and snow."*

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* Kirby's 'History of Animals,' &c., 'Bridgewater Treatise,' vol. i. p. 284.

In Sir Gardner Wilkinson's 'Dalmatia and Montenegro,' he tells us that the Illyrian snails mentioned by Pliny are very numerous in Veglia or Veggia, the Syractica of Strabo.

Both *Helix pomatia* and *Helix aspersa* are eaten abroad to this day, and formerly in England, according to Dr. Gray, the glassmen at Newcastle indulged themselves in a snail-feast once a year, and collected them from the fields and hedgerows on the previous Sunday. Addison, in his 'Travels,' mentions having seen a snail garden, or "escargotière," at the Capucins, in Friburg. It was a square place boarded in, filled with a vast quantity of large snails. The floor was strewn about half a foot deep with several kinds of plants, for the snails to nestle amongst during the winter. When Lent arrived, their magazines were opened, and a ragoût made of snails. In Barrois, an "escargotière" consists of a cask with the head staved in, covered with a net; or a square hole with the sides lined with wood, and fastened over at the top with an iron trellis, or with a simple hurdle made of light osier-sticks. The snails are placed in as they find them, until there are sufficient for a repast, or for sale. They are also kept in these places till they are ttened, or till they close their shells with their aphragm, which enables them to be more easily transported. In Lorraine, a corner of the garden is often given up to the snails, surrounded with a fine trellis-work to prevent their escaping, and all kinds of vegetables are placed inside which are most appreciated by them. During the winter, the "escargots" (their shells being closed with their epiphragm) are kept in pots, jars, or baskets, in a dry cold place. The vine-growers in the neighbourhood of Dijon keep them in a dry cellar, or dig a trench in the vine-slopes, placing at the bottom some leaves, then their snails, covering them with more leaves and a few spadefuls of earth.

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* Pliny's 'Letters,' vol. i. p. 30.

In Silesia, the snails are fed with marjoram, wild thyme, and aromatic plants, to give them a flavour.

Ulm, in Wurtemberg, is celebrated for its "escargotières," and, according to Marteni, more than ten millions of *Helix pomatia* are sent away to different gardens and "escargotières" to fatten, and when ready for table are sent to various convents in Austria for consumption during Lent.*

Helicidæ are considered rather poor food, and therefore suitable as Lenten fare; and this peculiarity has given rise to a singular custom near Bordeaux, mentioned by M. Fischer, who tells us that every year crowds of people direct their steps towards the township of Canderan, to end the Carnival with gaiety, and to have a foretaste of Lent by feasting on snails. The consumption is considerable, and a dish of twenty-five snails costs one franc fifty centimes.

A friend told me he had often seen the large vine-snail on the dinner table at Vienna; they were served up plain, boiled in their shells, or stuffed with force-meat. At Naples, snails are generally kept in bran for a week or two, or for two or three days, before they are considered good for the table. They live on the bran, which is said to fatten them.

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* Escargotières, or snail gardens have been in use for a length of time in various parts of Europe. Dr. Ébrard in his pamphlet 'Des Escargots,' mentions those of Brunswick and Copenhagen, which latter furnished snails for the tables of the noble Danes, in the eighteenth century.

When first the snails are gathered from the hedges, &c., it is a necessary precaution to starve them for a few days, and not to eat them at once, as they feed on poisonous plants, such as the deadly nightshade, poppy, datura, &c.; cases of poisoning by snails having occurred where they had been gathered near, or had fed upon these noxious plants.

It is a mistake to suppose that the only snails used as food are the *Helix pomatia* and *Helix aspersa*.* These are naturally preferred on account of their larger size, which makes them less troublesome to eat; but a variety of small kinds of snails, nineteen species in all, including those above mentioned, are also employed in cookery on the Continent, and there is no reason why they should not be as good as the others, nor is there any reason why we should not use snails, and many other molluscous animals, which we now throw aside, but which are doubtless quite as palatable and as wholesome as other kinds which our prejudices permit us to indulge in.

M. A. Docteur Ébrard, in his 'Des Escargots, au point de vue de l'Alimentation, de la Viticulture, et de l'Horticulture,' gives an interesting account of the use of snails both for food and medicine, and he tells us that during a sojourn of some weeks at Hyères, in the month of April, he was struck by seeing suspended at the side of the door of each cottage, a rush basket of a peculiar form. He was curious to find out the contents, and on looking into one he found it full of snails. At the sight of these creatures he made a slight movement of disdain, which was perceived by the master of the house, who said, "These snails disgust you, but we poor people eat no other meat all the year, except at Easter."

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* *Helix aspersa* has a variety of names in France, and in the north it is called *Colimaçon*, *Jardinière*, and *Aspergille*; at Montpellier, *Caraguolo*; in Bordelais, *Cagouille*, *Limaou*, and *Limat*; in Provence, *Escargot*, and *Escourgol*; at Avignon, *Caragoou* and *Contar*; *Banarut* at Arles; and *Bajaina* at Grasse.—Dr. Ébrard.

Dr. Ébrard adds that, during the famine of 1816 and 1817, snails were most valuable articles of food to the inhabitants of Central France; again, that from the coasts of Saintonge and Aunis, snails have been for a long time exported in casks to Senegal and the Antilles, amongst them *Helix aspersa;* but in 1825 this trade had greatly declined. M. Valmont Bomard saw the peasants, in the neighbourhood of La Rochelle, gathering an immense quantity of small snails to send to America, in casks filled with branches of trees, crossed again and again, so that the snails might be able to attach themselves firmly, and not be much shaken during the transport.

Helix aperta, which is not known in England, but is figured in Messrs. Forbes and Hanley's 'British Conchology,' from a dead specimen having been found in Guernsey, in 1839, is highly esteemed amongst real connoisseurs of snails, and is found in Provence (where it is called by the Provençaux, *Tapada*, *Tapa*, or *Tapet*), in some parts of Italy, and in the islands of the Mediterranean.

M. Moquin-Tandon tells us that vessels regularly visited the coasts of Liguria, in search of considerable quantities of *Helix aperta,* for food for the higher classes at Rome, where it is known by the name of *Monacello.* The shell is of a yellowish-olive colour and nearly translucent, thin, and of an ovate-globular form. It has a large mouth, with the peristome white, and the whorls four in number. In the heat of summer, and during the winter, this *Helix,* like *Helix pomatia,* buries itself in holes in the ground, shutting up the aperture of its shell with a calcareous epiphragm.

Two of the specimens I have in my collection, which came from Italy, still have this epiphragm very perfectly preserved, and it is glossy, and slightly convex. Theophrastus, in his 'Treatise upon Animals which live in holes,' states that snails have the habit of burying themselves. He says, "Snails live in holes during the winter, and still more in summer, on which account they are seen in the greatest numbers during the autumn rains. But their holes in the summer are made in the ground, and in the trees.*

Helix nemoralis is also eaten, and at Toulouse sells for five or ten centimes a dish; but by some, snails with striped shells are not considered good, as they have a bad taste and smell. M. Moquin-Tandon purchased, in 1847, in the market at Toulouse, a basket containing four hundred specimens of *Helix aspersa,* for sixty centimes; and another, with 1503 specimens of *Helix nemoralis,* for seventy-five centimes—making fifteen centimes the hundred for the former, and a little less than five centimes for the latter. *Helix nemoralis,* and *Helix hortensis,* are known by various names in France; for instance, "at Bordeaux they are called *Demoiselles; Mogne* at Libournes, *Limaio* at Agen,

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* Athenæus, 'Deipn.' vol. i. p. 104.

Moli-morno at Limoges, *Limaia* at Montpellier, *Livrée* in the north of France, and *Caracolo* in the Pyrenees."*

Helix pisana, which is a very local species with us, and only found at Tenby (where I have seen it in profusion), at Manorbeer, in Cornwall, Jersey, and Ireland, is greatly prized as an article of food abroad, and is larger than it is with us, indeed, almost as large as *Helix nemoralis.*

At Marseilles the average sale of *Helix pisana* and *Helix rhodostoma,* is about 20,000 kilogrammes, at three francs the fifty kilogrammes, which makes the sum of 1200 francs. By the sale of our common garden snail (*Helix aspersa*) the same price is realized, and that of *Helix vermiculata* amounts to 4800 francs. It is also stated that in the market at Dijon is sold, annually, about 6000 francs worth of the vine snail *Helix pomatia* (the escargot par excellence, and called also *Luma, Gros luma,* and *le Moucle de vigne*) at one franc fifty centimes per hundred.† In Italy the vine snail is known in some places by the name of *Bovolo.* In Corsica the same species are eaten, as those above mentioned, and it is said that, in the Island of Ré the sale of these *Helicidæ* amounts annually to 25,000 francs, but probably this sum is exaggerated.

In Burgundy, Champagne, and Franche-Comté, a great quantity of snails of all kinds are consumed, and also sent to Paris; and Professor Simmonds mentions that (in 1859) there were fifty restaurants, and more than 1200 private tables in that city, where snails were considered a delicacy by from 8000 to 10,000 consumers; that the monthly consumption of this mollusk was estimated at half a million; again, that the market value of the vineyard snail (vine snail, *Helix*

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* Dr. Ébrard, 'Des Escargots.'

† Idem.

pomatia) was from 2*s*. to 3*s*. per hundred, while those from the hedges, woods, and forests, brought only 1*s*. 6*d*. to 2*s*. He further adds, that in the vicinity of Dijon the proprietor of one snailery is said to clear nearly £300 a year by his snails; and also that there are exported from Crete annually about 20,000 okes (each nearly 3lbs.) of snails, valued at 15,000 Turkish piastres.

M. Renou (as quoted by M. Cailliaud of Nantes), in a curious account, read in 1864 before the Academical Society at Nantes, on the importance that the ancients attached to snails, observed, that during 1862 and 1863, the *escargots* brought to the Marché de la Bourse, at Nantes, on Sundays and *fête* days, amounted in number to 996,000, producing the sum of 2490 francs.* M. Roux, superintendent of the Clos de Vougeot, and neighbouring vineyards, gave, in the 'Union Bourguignonne,' some details of the operation of clearing the vines of snails. The Clos de Vougeot vineyard yielded fifty-five double-decalitres (each thirty-five pints); Romanée-Conti, six; Chambertin, six; Perrière and Plante-Chaude, three; in all, seventy. It was calculated that these snails would have eaten up buds, the produce of which, M. Roux estimated at from fifteen to twenty pipes of wine, without reckoning the injury to next year's growth. The cost of clearing these snails in the fifty-five hectares of the vineyard in question amounted to 120 francs, a mere trifle compared to what was saved. It is further stated that these mollusks were sold at a remunerative price, as, when sold in Dijon, Lyons, and especially in Paris, they represented a value of several thousand francs.†

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* 'Catalogue des Radiaires, des Annelides, des Cirrhipèdes,' &c., par Frédéric Cailliaud, de Nantes, p. 222.

† 'Morning Post,' May 8th, 1868.

We read that formerly, in Paris, snails were only to be found in the herbalists' shops, and at the chemists'; but now there are special places for them in the fish markets, by the side of the crayfish and other fresh-water fishes; and in nearly all the restaurants you may see dishes of *Helix pomatia* displayed in the windows. They are ready cooked, and only require warming for a few minutes on the gridiron. It is from Troyes, at the price of five francs the hundred, that the vine snail is sent to Paris, boiled in their shells, and seasoned with fresh butter mixed with parsley, and a very little garlic. When you wish to partake of them, you place them before the fire till the butter melts, and then they are fit to eat. I purchased some, and succeeded in eating two, but with difficulty, as the way they were dressed did not disguise the slimy, soapy taste, and the want of salt and pepper, etc., made them most unpalatable. I felt that I could sympathize with Dr. Black and Dr Hutton, who also endeavoured to eat a dish of stewed snails; but, after vainly attempting to swallow in very small quantities the mess which each internally loathed, "Dr. Black *at length* 'showed the white feather;' but in a very delicate manner, as if to sound the opinion of his messmate, 'Doctor,' he said, in his precise and quiet manner, 'Doctor, do you not think that they taste a little—a very little—green?' 'Green! green, indeed! Take them awa'! take them awa'!' vociferated Dr. Hutton, starting from the table and giving full vent to his feelings of abhorrence."*

In Paris, snails are not considered in season till the first frost, about the end of October, or beginning of

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* 'Curiosities of Food,' p. 348.

November, when they are closed with their white epiphragm. The Parisians eat about fifteen or twenty for breakfast, and they are also said to give a better flavour to wine.

In Spain, also, all snails are eaten, unless they are too small to cook; and they are called *Caracola,* and the men who gather and sell them are called *Caracoleros.* However, they apply the term *Caracola,* to all snail-like shells, only distinguishing them thus, *Caracola del mar, Caracola del rio, Caracola del huerta,* i.e. salt, freshwater, or garden caracoles.

Rossmässler mentions having seen fourteen different species of *Helicidæ* brought to the markets in Murcia and Valencia, and sold to be eaten. He adds that snails are not only food for the poor, for that many kinds are too costly. One species, called *Serranos,* is sold for a penny each of our English money; but they are not half that price bought by the dozen. They cook them by stewing them, shells and all, in a richly-spiced sauce, and then put the shell to the mouth, and draw out the animal by sipping or sucking it.

Rossmässler states, for the benefit of those who may travel in Spain for scientific purposes, that to collect *plants* it is useless to visit the north of Spain before the middle of April, and the south before the end of March. For *insects* and shells, the end of the summer, and, above all, the autumn is the best time of the year.

The snail-hunters, who daily supply the markets with large baskets of snails, often have to traverse great tracts of hilly country, and are obliged to go out very early in the morning, before sunrise, in search of these creatures, as they are then to be found in more abundance. Much amusement was afforded to the Spaniards by Rossmässler throwing away the delicate animal, and only retaining its shell, which to them was worthless, but most valuable to him as a conchologist. Upon one occasion, on arriving at a *posada*, he found the hotel people sitting down to their midday meal, before a great dish of snails. He says:—"One look satisfied me that they were of a rare kind, for which I had sought in vain, and I immediately seized upon some of the empty shells, which caused a universal laugh. I did not care at all for this, but I had actually to pay a real (about 2*s.* 4*d.*) for the empty shells, which, when living, I could have got for nothing." This was thoroughly Spanish.

Dr. W. Gottlob Rosenhauer, in his 'Die Thiere Andalusiens,' says that *Helix lactea*, which is very abundant, and readily found close to stones, amongst grass, near Malaga, and San Fernando, is brought in great numbers to the markets in Andalusia, and that the empty shells may be seen there all about the streets. Both *Helix aspersa* and *Helix lactea* are used abundantly for food, but the latter tastes better, and is more delicate. They are generally cooked in rice, with butter or some other greasy substance, and held in a napkin whilst the animal is picked out with a pin; or sometimes the mouth (or head) is first cut off, and the animal is then drawn out by suction, a proceeding not very elegant, at least according to our English ideas. *Helix lactea* may also be classed among the edible snails of France, and is found in the Pyrenees, and also in Corsica.

Dr. Ébrard was informed by Dr. Roi, the Inspector of Colonization in Africa, that in the market at Algiers large heaps of snails are to be seen of the same species as those in Central France, and are sold by the bushel, and by the hundred, as an article of food; and a small species, about the size of a pea, is collected in Algeria in great numbers, and given to the ducks.

At Oran (which is inhabited by a large number of Spaniards), in the European portion of the town, the Hon. Lewis Wingfield mentions coming upon a colony of Spaniards, principally charcoal-burners, living in dwellings hollowed out of the earth on the side of a bank sloping to the sea. The better classes of these extraordinary habitations were surrounded by a rough bamboo paling completely covered with large land snails, which are eaten by the poor people. There were also heaps of them lying in the sun to dry, and great stacks of them, neatly stored away in grass hampers, ready for transmission into the interior.*

Sir Gardner Wilkinson has seen basketsful of snails carried about for sale in the streets in Cairo; and in 'Physical Geography of the Holy Land,' it is stated that they are occasionally eaten in Syria, though not often.

De Busbecq, Seigneur of Indevelt, and Ambassador to the Court of Portugal, in a letter to his friend Nicholas Michault, written about 1554, gives the following story, which may amuse my readers. He commences by giving a description of the scenery of Constantinople, etc., and mentions various kinds of fishes taken in the Bosphorus and the sea of Marmora, and says also, "That the fishermen are for the most part Greeks, as they take to the occupation more readily than the Turks, although the latter do not despise fish when brought to table, provided they are of the kinds which they consider clean; as for the rest, they would as lief take a dose of poison, as touch them. I should tell you by the way, that a Turk would sooner have his teeth or tongue torn out, than taste anything which he considers unclean, as for instance, a frog, a snail, or a tortoise. The Greeks are subject to the same superstition. I had engaged a lad of the Greek Church as purveyor for my people. His fellow-servants had never been able to induce him to eat snails; at last they set a dish of them before him, cooked and seasoned in such a way that he fancied it was some kind of fish, and helped himself to it most liberally. But when the other servants, laughing and giggling, produced the snail shells, and showed him that he had been taken in, his distress was such as to baffle all description. He rushed to his chamber where there was no end to his tears, misery, and sickness. He declared that it would cost him two months wages, at the least, to obtain absolution for his sin; it being the custom of Greek priests to charge those who come for confession a price varying with the nature and extent of the offence, and to refuse absolution to those who do not comply with their demand."*

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* 'Under the Palms in Algeria and Tunis,' by the Hon. Lewis Wingfield, vol. ii. p. 226.

In Hone's 'Every-day Book,' we read that "No one will marry in May, but, on the first morning of that month, the maidens rise early to gather May-dew, which they throw over their shoulder in order to propitiate fate in allotting them a good husband. If they can succeed, by the way, in catching a *snail* by the horns, and throwing it over their shoulder, it is an omen of good luck; and if it is placed on a slate, then likewise it will describe, by its turning, the initials of their future husband's name." It is said that if on leaving the house you see a black snail (slug?) seize it boldly by one of its horns, and throw it over your left shoulder; you may then go on your way prosperously; but if you fling it over the right shoulder, you will draw down ill luck. This practice is said to extend as far a south as Lancashire.*

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* 'The Life and Letters of Ogier Ghiselin de Busbecq,' &c., by Charles Thornton Foster, Esq., M.A., and F. H. Blackburne Daniel, M.A., vol. i. p. 124.

In Piedmont, to induce the snail to put out its horns, children are accustomed to sing to it

"Limassa, limassa,
Tira fora, i to corn,
Dass no, i vad dal barbé
E ti tje fass taié."

In Sicily, children terrify the snail by informing it that their mother is coming to burn its horns with a candle; and in Tuscany, they threaten the white snail (*la marinella*) telling it to thrust out its little horns to save itself from kicks and blows.† This reminds us of the English children, who used to sing;

"Snail, snail, come out of your hole,
Else we shall beat you as black as a coal!"

According to the 'Archæologia Cambrensis,' in the parish of St. Clear's, Carmarthenshire, small portions of lands were formerly gambled away by means of snail races. The rival snails were placed at the foot of a post, and the one that first reached the top, won the land for its master. In the Isle of Wight, the fishermen of Atherfield and Brixton consider snails the best bait for prawns, and horseflesh next; and in the 'Art of Angling' the "white snail," and likewise the "black one" (slug ?) slit open that the white may appear, are recommended as good bait for the chub early in the morning, and likewise good night bait for the trout and eel.*

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* 'Folklore of the Northern Counties of England.'

† 'Zoological Mythology,' vol. ii. pp. 74, 75.

The Rev. S. Baring Gould, in 'Queer Culprits,' gives an account of the laws of Mediæval Europe, respecting the protection of persons, or things, from injuries by animals, insects, and *snails* etc.—He says, according to Jewish law, "If an ox gore a man or a woman that they die, then the ox shall be surely stoned, and his flesh shall not be eaten ; but the owner of the ox shall be quit." After giving this command Moses proceeds to enforce the doctrine of the responsibility of the beast's owner and to ensure his punishment should he wittingly let a dangerous animal run loose, also to make provision for his security under some extenuating circumstances. These commands were carried into the laws of Mediæval Europe; the priests at the same time introducing refinements of their own, and enforcing them in numerous cases, which afford matter for curious inquiry, and are full of technicalities and peculiarities at once amusing and instructive, as throwing light on the customs and habits of thought in those times. If a child was injured by a sow, or a man killed by a bull, the trial was conducted in precisely the same manner as though sow or bull were morally criminal. They were apprehended, placed before the ordinary tribunal, and given over to execution. If an inroad of locusts or *snails* takes place common law is helpless, it may pronounce judgment, but who is it to execute its decrees? Temporal power being palpably unavailing, the spiritual tribunal steps in; the decision of the magistrates being useless, perhaps excommunication may suffice. This then was an established maxim. If the criminal could be reached, it was handed over to the ordinary courts of justice; if, however, the matter was beyond their control, it fell within the jurisdiction of Ecclesiastical Courts." Bartholomew de Chasseneux, a noted lawyer of the sixteenth century, gives the following form of excommunication. "O *snails,* caterpillars, and other obscene creatures, which destroy the food of our neighbours, depart hence! Leave these cantons which you are devastating, and take refuge in those localities where you injure no one. J. N. P." etc.

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* 'The Art of Angling: Rock and Sea-fishing,' &c., by R. Brookes.

On the 17th of August, 1487, *snails* were sentenced at Macon.* The Norwegians are said to have had a "Lemming-Litany" in their church service, in which these pests were most solemnly exorcised.†

The shells of *Helix pomatia* are used for making small whistles for children. The apex of the shell is cut off, and a piece of tin added; they are then sold for a penny each; and who does not recollect the wonderful cats made of the shells of the common garden snail, *Helix aspersa,* with heads of putty or cement, and how anxious we were to become possessors of these beautiful creatures! They are now seldom seen, except in some small out-of-the-way shop in a country town or village, such trifles not suiting the tastes of the precocious juveniles of the present day.

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* 'Queer Culprits, Curiosities of the Olden Times,' by S. Baring Gould, M.A.

† 'Norsk, Lapp, and Finn,' by Frank Vincent, Jun., p. 98.

The ancients seem to have studied the habits of these mollusks, as besides Theophrastus, whom I have already quoted, Aristotle also mentions them; and Teucer speaks of the snail as "an animal destitute of feet and spine and bone, whose back is clad with horny shell, with long projecting and retreating eyes,"* and many others. Hesiod calls the snail the "hero that carries his house on his back," and Anaxilas says—

> "You are e'en more distrustful than a snail,
> Who fears to leave even his house behind him."†

Somewhat different is the old English proverbial rhyme,

> "Good wives to snails should be akin,
> Always to keep their homes within;
> Yet unlike snails they should not pack
> All they are worth upon their back."

Gwillim, in his 'Heraldry,' informs us that the snail is called *Tardigrada domiporta*, the "slow-going house-bearer," and adds, "the bearing of the snail doth signify that much deliberation must be used in matters of great difficulty and importance; for although the snail goeth most slowly, yet, in time she ascendeth to the top of the highest tower, as Mr. Carew, of Antony, hath wittily moralized in his poem, intituled 'The Herring's Tail.'" He gives snails as the armorial bearings of the Shelleys, but he also mentions whelks, which shells are now borne by this family.

The crest of the Carpenters of Somersetshire is a nail passant proper, shell argent; and that of the Galay family, a snail, horns erect, proper. In F. Osborn's 'Miscellany,' 1659, it is said that mushrooms,

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* Athenæus, 'Deipn.' bk. x. chap. 83, p. 720.

† Ibid. book ii. chap. 63, p. 104.

snayles, etc., have crawled into the dishes of princes, and are daily eaten in their Courts for dainties.*

To Dress Snails.—Take shell-snails, put them in boiling water, then pick them out of the shells, salt them, scour the slime from them, and then wash them in two or three waters; then dry them in a linen cloth, then put them into a napkin with salt, pepper, salad-oil, rosemary, thyme, parsley, and winter-savoury, shred small, mingle all well together; then, having cleaned the shells, fill them with these; lay them on a gridiron, and broil them over a gentle fire, then dish them, four or five dozen in a dish, fill them up with oil, and serve them hot.†

To Dress Snails.—Snails that feed on vines are considered the best. Put some water into a saucepan, and when it begins to boil, throw in the snails, and let them boil a quarter of an hour; then take them out of their shells; wash them several times, taking great pains to cleanse them thoroughly; place them in clean water, and boil them again for a quarter of an hour; then take them out, rinse them, dry them, and place them with a little butter in a frying-pan, and fry them gently for a few minutes, sufficient to brown them; serve them with some piquante sauce.‡

Snails cooked the French way.—Crack the shells and throw them into boiling water, with a little salt and herbs, sufficient to make the whole savoury; in a quarter of an hour take them out, pick the snails from the shells, and boil them again; then put them into a saucepan with butter, parsley, a clove of garlic, pepper, thyme, a bay-leaf, and a little flour; when sufficiently done, add the yolk of an egg, well beaten, and the juice of a lemon, or some vinegar.

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* 'Antiquarian Chronicle,' June, 1882.

† 'The Cooks' and Confectioners' Dictionary,' by John Nott.

‡ An old French Recipe.

"*To bake Snails.*—Boil them, scour them, season them with salt, pepper, and nutmeg; lay them into a pye with marrow, a raw chicken cut in pieces, bits of lard, and bacon without bone, whole mace, savoury herbs shred, butter, and slices of orange or lemon; having filled your pye, close it up, and when it is baked liquor it with white wine and butter."*

To fry Snails.—Take shell-snails in the months of January, February, or March; when they are closed up boil them tender, take them out of the shells, cleanse them from the slime, flour them, fry them, dish them; pour over them a sauce made of butter, vinegar, fried onions and parsley, with beaten butter, and juice of orange, or oil, vinegar, and slices of lemon.

To make a Hash of Snails.—Boil them, cleanse them and mince them, put them into a pipkin with butter or oil, salt, pepper, nutmeg, whole capers, pistachios, the yolks of hard eggs, and sweet herbs shred, let them stew over the fire for half an hour; lay toasts of fried French bread in the bottom of the dish, and some toasts round the snails in the dish.

Winter Soup of Snails.—Place the snails in boiling water for a few minutes, when they will easily come out of the shell. A little bit of hard matter is to be taken from the head; then stew them for a long time in milk.†

Another recipe from the same source.—Scald the snails to get rid of their shells, and then fry them with a few crumbs of bread, and a little seasoning, viz., pepper, salt, and a finish of fine herbs, or stew them with white or brown sauce.*

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* 'Cooks' and Confectioners' Dictionary,' by John Nott.

† 'Life in Normandy,' vol. ii. p. 24.

The following are Spanish recipes for cooking them:—

"*Snails with Parsley.—Caracoles con Perejil.*—Take a slice of crumb of bread, soak it in vinegar and water, pound it in a mortar with garlic, salt, pepper, parsley, and mint, add oil drop by drop, turning the pestle the whole time in the same direction; put the snails which have been already boiled, and taken out of their shells, into this, and serve cold, or fry the whole together."

"*Ragoût of Snails.—Guisado de Caracoles.*—Soak the snails in salt water, then wash them in two or three waters; take thyme, marjoram, bay-leaves, and salt, and fry them with chopped onions, in butter or oil; boil the snails, and take them out of their shells, or, if you prefer it, put them shells and all, into the butter, and fry them. Let them be served as follows: soak a piece of bread in vinegar and water, and pound it in a mortar with a clove of garlic, a little pepper, salt, parsley, and mint, chopped very fine; add oil drop by drop, turning the pestle all the time till it is quite a smooth paste, and place it round the dish, putting the snails in the centre.

French recipe for dressing Snails.—In spring and autumn, the snails which are found in the vineyards are good to eat, for those who like them; and to clean them and make them easy to get out of the shell they must be dressed as follows: take a handful of charcoal ashes, and put it into a saucepan or kettle with some soft water, or water from a river; when it boils, throw in the snails, and leave them for a quarter of an hour. When you find the snails can easily be picked out of the shell, take them and place them in some tepid water to cleanse them; then again put them into fresh water, and let them boil for a minute or so, take them out, and let them drain. Put into a saucepan a piece of butter, with a bunch of parsley, chives, a clove of garlic, two cloves, thyme, a bay-leaf, and some mushrooms, then add the snails, being careful that they are well drained. Pass the whole over the fire, adding a little flour moistened with broth, a glass of white wine, salt, and pepper, and let it simmer till the snails are quite tender, and till the sauce is nearly dried up in the pan. Serve them up with a sauce made as follows: take the yolks of three eggs, beat them up with some cream, warm it, but do not let it boil, add a little white vinegar or verjuice, with a little nutmeg.*

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* 'Life in Normandy,' vol. ii. p. 62.

Dijon method of cooking Snails.—Boil them in water with some thyme; take them out of their shells; place in the shells some fresh butter, kneaded with chopped parsley; replace the animal in its shell, and cover it with some more of the butter, etc. When required for eating, place them on an iron dish, or on one of porcelain. They are placed side by side, with the mouth of the shell upwards, in little holes in the iron or porcelain dish, which is made for the purpose, and they must be warmed till the butter melts. Thus prepared, snails sell at Dijon from five to ten centimes a piece.†

Another method of cooking Snails.—In the north and east of France, *Helix pomatia*, or *Hélices vigneronnes*, the vine snails, are boiled in water, and taken out of their shells, then stewed in a saucepan with some fresh butter and parsley; or else the snails, after they have been taken out of their shells, and are three parts cooked, are put into a saucepan with a little water and some butter, or with some broth, adding a little salt, pepper, white wine, or vinegar. When they are cooked and tender, pour over them a thickening of yolks of eggs with chopped parsley; the addition of nutmeg and lemon-juice makes them more savoury.*

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* 'La Cuisinière Bourgeoise.'

† Dr. Ébrard.

The inhabitants of Central France use several sauces for snails, and the four principal are the following, according to Dr. Ébrard, viz.:—

"*L'ayoli*, or *ail-y-oli*, of Languedoc; a paste made with olive oil and pounded garlic."

"*L'aillado*, of Gascony; a most complicated sauce of garlic, onions, chives, leeks, parsley, &c., with spices, cloves, and nutmeg, the whole thickened with oil."

"*La limassade*, of Provence, called *La vinaigrette* in Paris."

"*La cacalaousada*, of Montpellier, composed of flour, ham, sugar, &c. At Bordeaux the *aillada* is softened with a mixture of bread, flour, and yolk of egg, boiled with milk."

Stuffed snails are also considered very good. A fine stuffing is made with snails previously cooked, fillets of anchovies, nutmeg, spice, fine herbs, and a liaison of yolk of eggs. The snail-shells are filled with this stuffing, then placed before the fire, and served *very* hot. In some countries Blainville states, that snails are eaten, smoked and dried.

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* Dr. Ébrard.

FAM. SEPIADÆ.

SEPIA.—CUTTLE.

SEPIA OFFICINALIS, Linnæus. *Common Cuttle-fish, or Scuttle.*—The animal is curious, very flat, with white stripes across its body, the groundwork being dark brown. The head is brown, as well as the arms, but the inside of the latter is white, and is furnished with four rows of suckers. Its two tentacular arms are very long, expanded broadly at the tips, and are also furnished with suckers. The beak is hard and black, shaped like that of a parrot.

The common cuttle-fish, the *Sèche, Seiche,* or *Casseron,* of the French, is very generally eaten by our fishermen, and at Great Yarmouth they bring them in baskets to the houses for sale, recommending them as excellent and wholesome food. Cuttle-fish are often taken on the fishing lines, and will follow the bait to the surface, sucking it and holding fast by their long tentacles,* but we seldom find them alive on the shore, though their white *bones* are constantly picked up; and an immense number of these bones sometimes strew the beach from Beachy Head to Pevensey, while numbers float on the surface of the water. This was particularly the case there some years ago. It seemed as if there had been some epidemic amongst the cuttles which caused this great mortality, for certainly many basketfuls of bones might easily have been collected. They are not without their use; and at Liverpool, cuttle-bones are sold to the druggists for making tooth-powder, as much as twelve hundredweight arriving at a time;* and Pliny says that the ashes of calcined shells of the *Sepia* were used for extracting pointed weapons which had pierced the flesh.†

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* 'Sea Fish,' &c., by W. B. Lord.

In Germany it is called the *Blackfisch*, or *Tintenfisch*, and in Spain *Chocos, Rellenas, Castañuelas*, and *Sipia*; and the Manx name for it is *Eeast-yn-vraain-olley*.

Cuttle-fishes are very common in the Mediterranean, and are highly prized by the Neapolitans. In Corfu both the *Sepia* and *Octopus* are considered excellent food, and are regarded as flesh.‡ The modern Greeks also make *Sepiadæ*, and especially the *Octopodia*, a principal article of food; they dry them in great quantities, and store them away for use to be boiled or fried. Mr. R. A. Arnold mentions having seen both kinds for sale in the markets at Athens, and he adds, that these nondescripts fulfil every condition of the Greek Lent, and are accordingly much eaten by pious women. While on board the steamer, on the way to Eubœa, it happened to be Good Friday, and Mr. Arnold inquired of the steward what could be had for breakfast, he replied in Greek, "Fasting food," and the first dish was composed of polypus, crawfish, and vegetables, mingled together and floating in oil. This was followed by a dish of fried *Sepia*.§ Several kinds of *Cephalopoda* are eaten abroad. The *Octopus vulgaris* is eaten when young and small at Nice, where it is much more plentiful in the market than at Genoa; and if it weighs less than a pound, and is still tender, it is much esteemed. Those who purchase it generally hammer

* Phipson's 'Utilization of Minute Life.'

† Pliny 'Nat. Hist.' vol. vi. bk. xxxii. c. 43.

‡ 'The Ionian Islands,' by Professor Ansted.

§ 'From the Levant, the Black Sea, and the Danube,' vol. i. p. 79.

it well with a stick before cooking it; and at Marseilles the fishermen beat them with a reed, until it is broken, to make them tender. This is an ancient custom, for Aristophanes in his 'Dedalus' says, "It is what is called being beaten like a cuttlefish to make it tender."* It is also stated that the Greeks are careful to drag it for some time upon a stone, holding it by the opening in the body. The flesh is said to have a peculiar taste, consequently that of the cuttle-fish and calmar (*loligo*) is preferred. At Naples, shellfish merchants of Sta. Lucia sell them ready cooked.† At Venice, *Octopi* were sold ready boiled, and taken hot from the cauldron.‡ I have seen them in the market at Palma, Majorca, where they are called "Pop."

These *Octopods*, called *Octopodia* by the modern Greeks, are regularly exposed for sale in the markets of Smyrna, as they are in the bazaars in India; and on the coast of the Red Sea the inhabitants fish up a great quantity of *Poülps*, which they both eat and sell.§ The North American Indians are also partial to them.

Plato, the comic writer, says:—

"Good-sized polypus in season
  Should be boiled,—to roast them's treason,
But if early, and not big,
  Roast them; boil'd ain't worth a fig."

M. Verany gives the following description of it:—"The common *Poülp* (the *Polpo* of the Italians) is scattered throughout the Mediterranean, and is found on the coast of the Atlantic at the Canaries. According to facts collected by M. D'Orbigny, it has been found at Hayti, Cuba, Bahia, the Isle of France, the East Indies, and in the Red Sea. . . . This *Cephalopod* lives almost always amongst rocks, and generally hides itself in the holes and crevices, into which it penetrates with great ease, its body being very supple and elastic. It is in these recesses that he lies watching for the animals on which he lives; as soon as he perceives them, he cautiously leaves his den, darts like an arrow on his victim, which he wraps himself about, clasps in his serpent-like arms, and fixes, by means of his suckers. . . . Sometimes he places himself upon sandy ground at a short distance from the rocks, and is careful to construct a hiding-place. For this purpose he brings together, in the form of a circle, a quantity of pebbles, which he carries by fixing them on his arms by means of his suckers. Then, having formed a sort of crater, he ensconces himself in it, and there waits patiently for some fish or crab to pass, which he skilfully seizes." "The young *Poülps* in summer come to the pebbly shores, and they are sometimes met with in muddy places, from which they are taken by the trawl, together with numbers of Eledon (*Eledone cirrhosus*). They are usually fished for with a line without a hook, instead of which is substituted a piece of dog-fish, a bit of cuttle-fish, a white fish, a bone, a piece of suet, or some attractive substance weighted with a small stone. . . . They are also caught with a small olive-branch, fixed at the end of a rod, fitted with a hook, which is drawn backwards and forwards before the openings of the holes and crevices of the rocks."

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* Ozenne.

† See notes, 'Life in Normandy.'

‡ 'The World beyond the Esterelles,' by A. W. Buckland.

§ Ozenne.

M. Verany further states that the fishermen catch the large ones with the *leister,* or trident, and in summer the young *Poülps* are caught with a line weighted with lead, furnished with a cork fitted with several hooks, covered with pieces of scarlet cloth, twisted into thongs. He adds, that the largest *Poülp* he ever saw was about three yards long, and weighed nearly half a hundredweight, and was captured by a fisherman with his hands only. *Poülps* of thirty pounds weight are not rare at Nice, and those of twenty pounds are common.

Dr. J. H. Bennet has seen at Mentone a *Poülp* at least two mètres in length, including the tentacles . . . and further adds, that a young Italian with whose family he was acquainted, and who was a first rate swimmer, nearly lost his life from the attack of one of these monsters, about a kilomètre from Leghorn. He was resting upon a rock covered with seaweed, after having swum a long time when a *Poülp* seized him and would certainly have dragged him into the water and killed him, if some fishermen who were in a boat had not heard his cries, and come to his assistance.*

Octopus vulgaris is rare on the British coast. I recollect that some years ago, one was found on the shore at Beachy Head, by two fishermen, who put it into a large bucket or tub, and took it round to most of the houses at Eastbourne for exhibition; and Mr. Gosse found one, in 1860, on the beach at Babbicombe. Dr. Spence, of Lerwick, in 1862, sent an account to Dr. Allman, Professor of Natural History at Edinburgh, of a huge cuttle-fish, which was thrown on shore some-where on the Shetland Isles, its body measuring seven feet, and its arms sixteen feet in length. Very large *Cephalopoda* are found in the Pacific, and also in the Indian Seas, and are said to seize canoes, and drag them down; and woe betide the unfortunate bather should he happen to be taken in the grasp of one of these monsters; and on the authority of Sir Grenville Temple, in Beale's 'History of the Sperm Whale,' an anecdote is given, showing what happened in the Mediterranean to a Sardinian captain, who was bathing at Jerbeh. He felt one of his feet in the grasp of one of these animals, and tried with his other foot to disengage himself, but his limb was immediately seized by another of the monster's arms. He then endeavoured with his hands to free himself, but these also in succession were firmly grasped by the *polypus*, and the poor man was shortly found drowned, with all his limbs firmly bound together by the twining arms of the fish; and it is extraordinary, that where this happened, the water was scarcely four feet deep. Frédol, in 'Le Monde de la Mer,' states that the famous diver, Piscinola, who at the desire of the Emperor Frederick II., dived in the Straits of Messina, saw, with much alarm, enormous *Poülps* attached to the rocks, their arms several yards long, quite capable of destroying a man.

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* 'La Méditerranée, La Rivière de Gênes et Menton,' par Jacques Henri Bennet.

Pliny gives a description of the dangerous powers of the *polypus* for destroying a human being in the water; embracing his body, it counteracts his struggles, and draws him under with its feelers, and its numerous suckers.* It is said that the fishermen at the present day, on the coast of Normandy, state that the *polypus*, which they call *Chatrou* (or *La pieuvre*), is a most formidable enemy to swimmers and divers, for when it has embraced the limbs with its tentacles, it adheres with such tenacity that it is quite impossible for a person to disengage himself, or to move any of his limbs.*

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* Pliny, 'Nat. Hist,' vol. ii. bk. ix. chap. 48, and note.

The common *Octopus punctatus* of the west coast of North America is the largest of its tribe hitherto studied; but the gigantic *squids* far exceed it in size, as we shall read presently. Mr. W. H. Dall, in the 'American Naturalist,' 1873, tells us that this species of *Octopus* occurs abundantly at Sitka and there reaches a length of sixteen feet on a radial spread of nearly twenty-eight feet, but the whole mass is much smaller than the decapodous (or ten-armed) *cephalopods* of lesser length. In the *Octopus* above mentioned, the body would not exceed six inches in diameter, and a foot in length, and the arms attain an extreme tenuity towards their lips. Dr. W. O. Ayres informed Mr. Verrill, the writer of the above, that he has often seen this species exposed for sale in the markets of San Francisco, where it is eaten by the French, and that specimens with the arms six or seven feet long are common; and Professer W. H. Brewer states that he has seen specimens in the same markets which spread fourteen feet across the outstretched arms.†

The ten-armed *Cephalopods*, or *Gigantic squids*, attain larger dimensions than the *Octopus*, viz. the species of *Architeuthis* (a genus which is closely allied to *Ommastrephes*), *Onychoteuthis robusta* (or *Lestoteu-*

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* 'Life in Normandy,' note.—D. D.

† 'Cephalopods of the North Eastern Coast of America,' by A. E. Verrill, Part i. p. 252.

this), as the following account taken from Mr. A. E. Verrill's 'The Cephalopods of the North-Eastern Coast of America,' will prove. He mentions the early literature of Natural History containing allusions to large species of Cephalopods, accompanied by more or less fabulous and usually exaggerated descriptions, as for instance the one given by old Eric Pontoppidan, which I shall quote further on. Professor Steenstrup, and Dr. Harting were the first to describe and figure these *Gigantic squids* scientifically. The American fishermen frequently meet with these *big squids*, in the waters of Newfoundland and the adjacent coasts; and the cod-fishermen who visit the Grand Banks, appear to have been long familiar with them, and occasionally to have captured and used them as bait. The whalemen state that the sperm whale feed upon huge *squid*, and that when wounded they often vomit large fragments of them in such a condition as to be recognizable,* and this statement is corroborated by Mr. R. Warrington, of Apothecaries' Hall, who informed Mr. H. Woodward that the test of the genuineness of "Ambergris" as imported, which is found in the sperm whale (*Physeter macrocephalus*) is, that it is full of the undigested beaks of the *Calamary*, upon which it feeds; and one of the "Delphinidæ," the *Hyperoodon*, or *Bottle-headed whale*, is also said to feed upon cuttle-fishes, as Mr. W. Vrolik found in the stomach of one specimen about ten millions of the mandibles of a species of *Loligo*.†

According to Mr. H. Woodward, the undigested remains of fossil cuttle-fishes are frequently noticed within the ribs of the Ichthyosauri, and Plesiosauri of our Lias.* Mr. A. E. Verrill thinks it probable that only three distinct forms exist amongst the large Newfoundland specimens of Architeuthis, and two of these may be merely the males and females of one species. The Grand Banks specimen (*Architeuthis princeps*) was found floating on the surface, on the Grand Banks, Newfoundland, October 1871, by Captain Campbell, of the Schooner 'B. D. Hoskins,' of Gloucester, Mass. The body measured fifteen feet in length, four feet eight inches in circumference. The arms were mutilated, but the portions remaining were estimated to be nine or ten feet long, and twenty-two inches in circumference, two being shorter than the rest. It was estimated to weigh 2000 lbs. The "Thimble Tickle" specimen was captured on the 2nd November, 1878, by Stephen Sherring, a fisherman, who was out in a boat with two other men, and observed some bulky object not far from shore, and they supposed it to be a portion of a wreck, and rowed towards it. To their horror they found themselves close to a huge fish, having large glassy eyes, which was making desperate efforts to escape, and churning the water into foam by the movement of its immense arms and tail. It was aground, and the tide was ebbing. From the funnel at the back of its head it was ejecting large volumes of water, this being its method of moving backwards, the force of the stream, by the reaction of the surrounding medium, driving it in the required direction. At times the water from the siphon was as black as ink. Finding the monster partially disabled, the fishermen plucked up courage enough to throw the grapnel of their boat, the sharp flukes of which, having barbed points, sunk into the soft body. To the grapnel they had attached a stout rope which they had carried ashore and tied to a tree, so as to prevent the fish from going out with the tide. It was a happy thought, for the devil-fish found himself effectually moored to the shore. His struggles were terrific as he flung his ten arms about in dying agony. The fishermen took care to keep a respectful distance from the long tentacles, which ever and anon darted out like great tongues from the central mass. At length it became exhausted, and as the water receded it expired. The fishermen, knowing no better, proceeded to convert it into dog's meat. It was a splendid specimen, the largest yet taken, the body measuring twenty feet from the beak to the extremity of the tail. . . . . The circumference of the body is not stated, but one of the arms measured thirty-five feet. This must have been a tentacle. Twenty other specimens are mentioned by Mr. Verrill, and their dimensions given.

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* Maurz's 'Sailing Directions,' as quoted by Mr. A. E. Verrill.

† Description de 'Deux Céphalopodes gigantesques,' par P. Harting.

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* 'Intellectual Observer,' vol. xi. p. 165.

It is not only on the north-eastern coasts of America that these gigantic cephalopods have been met with, for Mr. W. H. Dall, discovered a large and very interesting species, viz., *Onychoteuthis robusta,* near Iliulink, Unalashka Island, off the coast of Alaska, in 1872, thrown upon the beach, and Mr. T. W. Kirk, in the 'Transactions of the Wellington Philosophical Society,' October, 1879, describes the occurrence of five specimens of giant cuttle-fish on the coast of New Zealand, of the species *Architeuthis Mouchezi*(?). The cuttle-bone of one, when first extracted, measured six feet three inches in length, and eleven inches in width.*

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* 'The Cephalopods of the North Eastern Coast of America,' Parts i. and ii., by A. E. Verrill.

Large specimens are found in Japan, and also at Bermuda, and a sailor who had seen some very large at the latter place, and had heard of people being attacked by them whilst bathing, told me that he had ever after felt shy of bathing in the sea, and that even the thought of them made him shudder. A friend of mine told me that, on his voyage to Ceylon, many years ago, he used to beguile the time by fishing, and once he caught a huge cephalopod. When it was hauled on board, it stuck and clung with such tenacity to the deck and ropes, that it could not be pulled off, and was at last cut to pieces with a hatchet.

M. Flourens communicated to the French Academy an account of an enormous specimen which was seen by Lieut. Bouyer of the French Steamer 'Alécton,' in November 1860, forty leagues from Teneriffe. The body appeared to be from fifteen to eighteen feet in length, and it was of a reddish colour. It has been designated, *Architeuthis Bouyeri*, provisionally.

The Norwegian *Kraken*, *Kraxen*, or *Krabben*, was held to belong to the Cephalopods, and old Eric Pontoppidan, a Norwegian bishop, describes it as an *animal* the largest in creation, whose body arises above the surface of the water like a mountain, and its arms like the masts of ships; and he adds, that a whole regiment of soldiers could easily go through their manœuvres on its back. The Bishop of Midaros is said to have discovered one of these gigantic *krakens* asleep in the sun, and believing it to be a large rock, raised an altar on its surface and celebrated Mass. The *kraken* remained stationary during the ceremony, but the bishop had scarcely regained the shore, before the monster replunged into the deep.*

The *Hydra* of Lerna, destroyed by Hercules, was most certainly a *polypus*, or *sepia*, and in *at least one* of the early representations of the subject, the animal is most correctly drawn as a cuttle-fish or polypus. Montfaucon represents the *Hydra* as a "Monster with several heads—some seven, others nine, and others fifty—but that it was not a dragon is evident, not only from the waves which are at its feet, but also from the form and capaciousness of its breast, and whole body; and again, its connection with the ocean can be traced in the *crab* being sent to its assistance by Juno, to bite Hercules in the heel, and when he crushed it, he overcame the *Hydra*. Juno, unable to succeed in her attempts to lessen the fame of Hercules, placed the *crab* amongst the constellations, and it forms one of the signs of the zodiac. It represents the month of June, because, when the sun has come to this constellation he begins to go backwards like a *crab*."†

Pliny mentions several kinds of polypi, one of which he especially calls the *land polypus*, and states that it is larger than that of the sea; and Hardouin says it is the species found on the seashore, which more frequently comes on dry land than the other kinds.‡

In the Polynesian islands, the natives have a curious contrivance for catching cuttle-fish. It consists of a straight piece of hard wood, a foot long, round, and polished, and not half an inch in diameter. Near one end of it a number of beautiful pieces of the cowrie, or tiger-shell, are fastened one over another, like the scales of a fish, until it is nearly the size of a turkey's egg, and resembles the cowrie. It is suspended in a horizontal position by a strong line, and lowered by the fisherman from a small canoe, till it nearly reaches the bottom. The fisherman jerks the line to cause the shell to move, as if it were alive, and the jerking motion is called *tootoofe*, the name of the contrivance. The cuttle-fish, attracted by the cowries, darts out one of its arms, and then another, and so on, until it is quite fastened among the openings between the pieces of cowrie, when it is drawn up into the canoe and secured.

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* 'Le Monde de la Mer,' par Frédol.

† 'Nat. Hist. of Crabs and Lobsters,' by Frank Buckland, Esq. Joint Appendix, No. ii. 'Report on Crab and Lobster Fisheries, &c., 1877.'

‡ Pliny, 'Nat. Hist.' vol. ii. bk. ix. c. 46; see note.

The natives of the South Seas have also another special bait for the *Octopus*, which appears to differ slightly from the kind already described. It is said to be a rat-shaped bait, round which, when dangled in the water, over the edge of the reef, the *Octopus* wraps himself so tenaciously as to enable the fisherman to pull him out. . . . In the centre of this bait is a piece of quartz, sometimes of an agate species, rubbed into a cone. This is backed by pieces of mottled shell kept in place by cocoa-nut fibre, which passes underneath, and extends past the point of the cone, into the semblance of a tail. Mr. Lambert, the authority for the above, further tells us, "that there are one or two characteristic native traditions at Tonga Tabu (Figi Islands), relative to the peculiar hostility of the *Octopus* tribe to the rat tribe. Formerly they were warm friends, but a rat on a volcanic island, which w suddenly found to be sinking below the surface of the water, having called on an *Octopus* to carry him on his head to a more secure dwelling-place with promises of cocoa-nuts in return for safe carriage, not only forgot to pay his passage, but, having felt ill on the voyage, behaved in anything but a nice manner; these facts so rankled in the hearts of the *Octopi*, that they are quite unable to resist making an onslaught on a bait which combines the elements of both rat and nut. The natives set great store by these baits, which they call *Makafechis*."*

The following legend of the *Cuttle-fish*, from 'Tales of Old Japan,' may not be uninteresting to some of my readers. "The citizens of Yedo flock for purposes convivial or religious, or both, to Meguro, one of the many places round Yedo, and cheek by jowl with old shrines and temples you meet with many a pretty tea-house. In one of them a thriving trade is carried on in the sale of wooden tablets, with the picture of a pink *cuttle-fish* on a bright blue ground. These are, *ex-votos*, destined to be offered up at the Temple of Yakushi-Niurai, the Buddhist's Æsculapius, which stands opposite, and concerning the foundation of which, the following legend is given. 'In the days of old there was a priest called Jikaku, who, at the age of forty years, it being the autumn of the tenth year of the period called Tenchô (A.D. 833), was suffering from a disease of the eyes, which had attacked him three years before. In order to be healed of this disease he carved a figure of Yakushi-Niurai, to which he used to offer up his prayers. Five years later he went to China, taking with him the figure as his guardian saint, and at a place called Kairetsu it protected him from robbers, wild beasts, and from other calamities.

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* 'Voyage of the Wanderer.'

There he passed his time in studying the sacred laws, both hidden and revealed, and, after nine years, set sail to return to Japan. When he was on the high seas a storm arose, and a great fish attacked and tried to swamp the ship, so that the rudder and mast were broken, and the nearest shore being that of a land inhabited by devils, to retreat or advance was equally dangerous. Then the holy man prayed to the patron saint, whose image he carried, and as he prayed, behold the true Yakushi-Niurai appeared in the centre of the ship, and said to him, "Verily thou hast travelled far that the sacred laws might be revealed for the salvation of many men, now therefore take my image, which thou carriest in thy bosom, and cast it into the sea, that the wind may abate, and that thou mayest be delivered from this land of devils." The commands of the saints must be obeyed; so, with tears in his eyes, the priest threw the sacred image into the sea. Then did the wind abate, and the waves were stilled, and the ship pursued her course as though she was being drawn by unseen hands, until she reached a safe haven. In the tenth month of the same year, the priest again set sail, trusting to the power of his patron saint, and reached the harbour of Tsukushi without mishap. For three years he prayed that the image he had cast away might be restored to him; until at last, one night, he was warned in a dream, that on the sea-shore at Matsura, Yakushi-Niura would appear to him. In consequence of this dream he went to the province of Hizeu, and landed on the shore at Hirato, where, in the midst of a blaze of light, the image which he had carved appeared to him twice, riding on the back of a *cuttle-fish*. Thus was the image restored to the world by a miracle.' In commemoration of his recovery from the disease of the eyes, and of his preservation from shipwreck, that these things might be known to all posterity, the priest established the worship of Tako Yakushi-Niurai (*Yakushi-Niurai of the Cuttle-fish*), and came to Meguro, where he built the temple of Fudô Sama,* another Buddhist divinity. At this time there was an epidemic of small-pox in the village, so that men fell down and died in the street, and the holy man prayed to Fudô Sama, that the plague might be stopped. Then the god appeared to him and said, 'The Saint Yakushi-Niurai of the Cuttle-fish, whose image thou carriest, desires to have his place in this village, and he will heal this plague. Thou shalt therefore raise a temple to him here, that not only this small-pox, but other diseases for future generations, may be cured by his power.' Hearing this, the priest shed tears of gratitude, and having chosen a piece of wood, he carved a large figure of his patron saint of the Cuttle-fish, and placed the smaller image inside the larger, and laid it up in this temple, to which people still flock that they may be healed of their diseases."

This story is said to be translated from a small ill-printed pamphlet sold by the priests of the temple, all the decorations of which, even to the bronze lantern in the middle of the court-yard, are in the form of a *cuttle-fish*, the sacred emblem of the place.†

Both the Chinese and the Japanese make use of *Octopus sinensis* (d'Orbigny) as food when young, and season it with vinegar and ginger, and also of a species of *Loligo*. The Chinese have a special boat for the *Cuttle-fish* fishery, which is carried on both by day and night; and if by night a fire is lighted on deck, that the glare may attract the fish to the surface. The season for *cuttle-fish* extends from the second to the eighth Chinese month (March to September), and the haul is most abundant in the fifth, sixth, and seventh months (June, July, and August). They are taken with nets, and also with hooks. . . . It is only in rainy weather that *Cuttle-fish* are brought at once to the market and sold fresh. In fine seasons they are dried in the sun on the rocky islands, and then disposed of. . . . To dry *Cuttle-fish* they must be cut open and eviscerated, and finally exposed on a bamboo mat in the sun. When quite dry they are packed in wooden tubs and flattened by the aid of human feet.*

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* 'Fudô,' literally 'the motionless;' Buddha, in the state called Nirvana.

† 'Tales of Old Japan,' by A. B. Mitford, vol i. p. 40.

The flesh of the *Loligo*, or *Squid*, was highly esteemed by the ancients, and Ephippus recommends the eating of *Squids* and *Cuttle-fish* together.

> "And many polypi, with wondrous curls."
> *Athen.*, *Deipnosophists.*

And Sotades, the comic poet, introduces a cook, speaking as follows:—

> "To these I added cuttlefish and squills;
> A fine dish is the squill when carefully cooked,
> But the rich cuttlefish is eaten plain;
> (Though I did stuff them all with a rich forced-meat
> Of almost every kind of herb and flower).
> Bk. vii. c. 41, *Athen.*, *Deipnosophists.*

They are still exposed for sale in the bazaars and markets in India.

With us the *Squid*, or *Squill*, as it is sometimes called at Weymouth, is only used as bait. It is good for catching conger-eels and whiting-pout, also for cod-fishing; but it is also a great enemy to the fisherman; and on the French coast they say that the *Calmar,* as they call it, often tears the fish from their hooks during the night when they are fishing with lines. The inhabitants of the Basque provinces esteem *Calmars* highly as food, and call them *Chipirones,* and at Bayonne they are also known by the same name, as well as by that of *Cornet* or *Corniche.* The Spanish names for *Loligo vulgares* are *Maganos, Gibiones, Lura, Calamars, Rintillas,* and *Calamarons;* and in Italy it is known by several names also, amongst them, *Calamaro, Calamajo, Totano;* and *Pocuranac* at Fiume.*

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* China, 'Imperial Maritime Customs.'

M. Cantraine says that the young only of *Loligo sagittata* are esteemed as food, and are called *Calamaretti;* but that *Loligo subulata* is the species most sought after, its flesh being very delicate. Both these are Mediterranean species.†

Both in China and Japan, *Squids* are regularly collected for food, and Mr. Arthur Adams gives, in the 'Zoologist,' p. 7518, an interesting account of the *Squid-fishery* off Nisi-Bama, in the Oki Islands. On nearing the anchorage, on the 19th November, 1859, they were struck by the number of lights on the water, moving in all directions, and on inquiry they found that they were from fishing-boats on the look out for *Ika-surame,* or *Squids.* The lights were produced by kindling "birch-bark in small kinds of gratings, with long wooden handles, machines known among seafaring men by the name of *devils.* The flame of the fires is very clear and vivid; and the devils, being held over the sides of the boats, attract the *Squids*." They were a species of *Ommastrephes*, usually called by the fishermen the *Flying-squids*, or *Sea-arrows*, as they swim very rapidly over the surface of the water, in immense shoals. They were taken by "jigging." The "jig" is of iron, and consists of a long shank, surmounted by a circlet of small recurved hooks. These cuttles are favourite articles of food, both with Japanese and Chinese, and are carefully dried for the market, and sold in great quantities. Near Hakodadi there is, we are told by Mr. Adams, a small fishing village exclusively devoted to the catching and curing of the *Squid*; and many hundreds of thousands may be seen daily drying in the open air, all nicely cleaned; each kept flat by means of little bamboo stretchers, and suspended in regular rows on lines, which are raised on poles about six feet from the ground. The open spaces, and all the houses in the village, are filled with these squid-laden lines. *Squids* everywhere form a novel kind of screen.

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* 'The Fisheries of the Adriatic,' by Faber.

† 'Malacologie Méditerranéene et Littorale,' par F. Cantraine.

Pliny speaks of the *Springing loligo*, and Trebius Niger remarks that whenever it is seen darting above the surface of the water, it portends a change; and also that they sometimes dart above the surface in such vast numbers, as to sink the ships upon which they fall.*

Another of the *Teuthidæ*, which is rare on our coast, but is common in the Mediterranean, *Sepiola Rondeletii*, is eaten at Nice, and is called *Supieta*, or *Sepiata*, and is said to be a very delicate morsel. The Italians call it *Calamaretto*, *Zottolina*, *Sepolina*, and *Seppietta*; and quantities are consumed at Genoa and Leghorn, and it is also used as food in Sicily and Sardinia.

Aristotle speaks of the *Teuthis*, which he says is a kind of *Cuttle-fish*, but different from the *Sepia*, and has ink of a pale colour. Alexis talks of cooking them thus:—

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* Pliny, 'Nat. Hist.' vol. vi. bk. xxxii. c. 6.

> "I took the *teuthides*, cut off their fins,
> Adding a little fat, I then did sprinkle
> Some thin shred herbs o'er all, for seasoning."
> Bk. vii. c. 130, *Athen.*, *Deipnosophists.*

And Antiphanes, in his 'Female Fisher,' says (referring to the ink):—

> "Give me some cuttle-fish first. O Hercules,
> They've dirtied every place with ink; here, take them,
> And wash them clean."

According to Pliny, Anaxilaus states that the ink of the *Sepia* is possessed of such remarkable potency that if it is put into a lamp, the light will become entirely changed, and all present will look as black as Ethiopians.*

The ink of the *Cuttle*, or *Sepia*, is dried, and imported from China to Liverpool, where it arrives either in cakes, or is there made into cakes called *Sepia*, which is used in painting. Dr. Lankester, in his little work on 'Animal Products,' says that the *Cuttle-fish* is very abundant in the Mediterranean, and that the ink-bag is carefully extracted, the liquid being poured out to allow of its drying as quickly as possible. It is then triturated with a little caustic soda, or potash, and afterwards boiled with caustic lye for half an hour, when it is filtered, and the caustic liquid is then treated with an acid till it is neutralized. After standing, a precipitate falls, which is collected, washed with water, and finally dried by a gentle heat. This substance is the dark pigment used by artists under the name of *Sepia*.

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* Pliny, 'Nat. Hist.' vol. vi. bk. xxxii. c. 52.

The polypus is the symbol of Messina, and, according to Montfaucon, is figured on a medal of that city, with a man's head on the reversed side.

Pliny recommends the polypus for arresting hæmorrhage, it is bruised and then applied; and he further adds, concerning it, that of itself it emits a sort of brine, and therefore needs none to be used when it is cooked; that it should be sliced with a reed, as it is spoilt if an iron knife is used, "becoming tainted thereby, owing to the antipathy which naturally exists between it and iron," and Dalechamps suggests that this means, "it being the nature of flesh to cling to the knife."*

In France, *Octopus vulgaris* is highly prized for bait, and is also considered very good as food, and in 'Life in Normandy' is the following recipe for cooking it:—"A dish of cuttle-fish is divided in the centre by a slice of toast; on one side of the toast is a mass of cuttle-fish stewed with a white sauce, and on the other, a pile of them beautifully fried, of a clear even colour, without the slightest appearance of grease. The flour of haricot-bean, very finely ground, and which is as good as bread-crumbs, is added."

To Cook Cuttles (*Mont St. Michel Recipe*).—First place them in boiling water and allow them to remain some time in order to make them tender. Then cut them in pieces and boil them with vegetables and onions, then fry them in a paste made of batter.

The water in which the fish has been boiled is used for soup.†

"*To Cook Cuttles.*—First cleanse them thoroughly by scalding; then rub the body and legs (feelers?) with garlic, and afterwards cut the whole into small pieces, and fry in olive oil; one or two fresh gathered Chili peppers being introduced as seasoning."*

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* Pliny 'Nat. Hist.' vol. vi. bk. xxxii. c. 42.

† Ozenne.

"*Jersey Method of Cooking Cuttle-fish.*—Boil them for ten minutes, then take them out, and the skin will come off like a glove, leaving the fish like so many sticks of horse-radish. Then boil them for an hour longer; take them out and cut them up, and fry them with onions. Some prefer slices of bacon fried with them instead of onions, and served up with milk sauce.† They are plentiful about October, and large ones are sold in the markets at a penny each."

Italian Recipe.—Fry them in oil. They cook them thus at a small village on the Riviera, not far from Savona, and they taste like skate.

Weymouth Recipe for Cooking Common Cuttle, or Scuttle.—Cut off the head and feelers, and take out the white bone; then boil for a short time till tender—generally ten minutes or so will suffice. It is said to taste like lobster.

Alexis, in his 'Wicked Woman,' introduces a cook, saying:—

> "Now these three cuttle-fish I have just bought
> For one small drachma; and when I have cut off
> Their feelers and their fins, I then shall boil them,
> And cutting up the main part of their meat
> Into small dice, and rubbing in some salt
> (After the guests already are set down),
> I then shall serve them in the frying-pan,
> And serve up hot towards the end of supper."

Cuttles are in the best season from January to the end of March, and they may be cooked thus:—Boil them and cut them in pieces, season with scallions and onions, and add a little vinegar towards the end.

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* 'The Gun, Rod, and Saddle,' by Capt. J. Parker Gilmore.

† Mr. A. Morton.

Spanish Method of Stewing Cuttles.—Stew them over a *very slow* fire in oil or butter, and, before serving, add a little water, salt, bread-crumbs, saffron, and a *soupçon* of new honey or sugar.

Montpellier Method of Cooking Sepiola Rondeletii.—Stuff it with a force-meat of fish, then fry the arms and cut them in pieces, and place them round the dish.*

In Spain the cuttle-fishes (*Sepiola* and *Loligo ?*) *Calamares* are eaten, either broiled on a gridiron, or stewed in red wine in an earthern jar; after which you may boil them if you like, or serve them in wine, or stew them, adding, after they are tender, a little flour, and the yolk of an egg, well beaten, and this is considered the most wholesome way of dressing them.

At Palma, Majorca, they are usually stuffed with a force-meat, and I found them most palatable, the flavour resembling that of the lobster.

In Andalusia the *Calamar*, or *Choco*, is much prized, and is very plentiful; and Major Byng Hall mentions them as one of the great treats of the natives of Madrid.†

Another species of Octopus, viz. *Eledone moschatus*, which is found in the Mediterranean, is eaten by the lower classes in Italy, either boiled, fried, or made into a ragoût; and in Sicily and Sardinia, where it is abundant, the fishermen use it largely for food.‡ They know it by the following names, *Muscardino*, *Muscarolo*, and *Folpo da risi*.

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* Ozenne.

† 'The Queen's Messenger.'

‡ Ozenne.

FAM. CIDARIDÆ.

ECHINUS.—SEA EGG.

ECHINUS SPHÆRA, Müller. *Common Sea-egg, or Sea-urchin.*—A wish has been expressed that I should include the "Sea-egg" in my 'Edible Mollusca,' but I scarcely feel justified in doing so, as it is *not* a *mollusk*, and has no other claim to appear on these pages further than its being fit for food.

It belongs to another class of animals, the *Radiata*, or *Echinodermata*, which includes the star-fishes, and the *Holothuriadæ*. The *Radiata* are so called because all their parts radiate from a common centre.

Echinus sphæra is generally of a reddish colour, or purplish, and has white spines, in some tinged with purple.

Pliny states that the *Sea-urchin* moves along by rolling like a ball, which is the reason that it is so often found with the prickles rubbed off; also "that these creatures foreknow the approach of a storm at sea, and that they take up little stones with which they cover themselves, as a sort of ballast; for they are very unwilling, by rolling along, to wear away their prickles. As soon as seafaring people observe this, they at once moor their ship with several anchors,"* and we are told that the natives of Apia Tali Upolu (Samoa), say they can foretell a storm before its appearance, by noticing the *Echini* crawling into snug holes, where they may lie secure on the reefs, undisturbed by the raging waters. "The sea roars, and the *Echini* listen," is the Samoan proverb to describe prudence.* By Aristotle it is called the "migratory fish." Professor Forbes, in his 'History of British Star-fishes,' observes that "it is with their spines that the *Echini* move themselves, seize their prey, and bring it to their mouths by turning the rays of their lower edge in different directions. The mouth is generally turned to the ground, and the five teeth which project from it form part of a remarkable dental apparatus, known by the fanciful appellation of 'Aristotle's lantern.'"†

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* Pliny, 'Nat. Hist.' vol. ii. bk. ix. c. 51, p. 427.

In heraldry we find, according to Mr. Moule, that the *Echinus* is borne, the arms of the Alstowne family being *gules, three sea-urchins in pale argent;* and those of Alstanton, *azure, three sea-urchins argent.* The shells of *Echinus sphæra,* the common sea-egg, are often used for making emery cushions, cases for yard measures, and other toys.

Pennant mentions sea-eggs being used for food in many parts of England; and Mrs. Gatty, in 'Old Folks from Home,' if I remember correctly, states that *Echinus lividus*, or "purple egg-urchin," is eaten on the west coast of Ireland. It is one of the burrowing species, and lives in holes formed by it in the rocks. Mr. W. Thompson informed Professor Forbes that he had seen it in abundance in the South Isles of Arran. "It was always stationary, the hole in which it is found being cup-like, yet fitting so as not to impede its spines. Every one lived in a hole fitted to its own size, the little ones in little holes, and the large ones in large holes; and their purple spines and regular forms presented a most beautiful appearance, studding the bottoms of the grey limestone rock pools."*

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* 'A Lady's cruise in a French Man-of-war.'

† Forbes's 'British Star-fishes,' p. 154.

At the Museum of the Jardin des Plantes, at Paris, I have seen specimens of this *Echinus* in a block of sandstone from the Baie de Douarnenez, in Finisterre; also, specimens of *Echinus perforans* in granite rock from the Bay of Croisic. How these animals bore into such hard substances is still a question; it is supposed by some that they first perforate with their teeth and then soften the rocks by some secreted solvent.†

A friend of mine, who examined some of the holes, observed that they are evidently formed by the animal, and are lined with a smooth yellow substance which it deposits on the stone; that in limestone rocks the deposit is probably obtained from the stone itself by means of a solvent, but that in granite it may be derived from the lime held in solution in the sea-water.

Mr. H. N. Moseley mentions that at St. Vincent, Cape de Verde Islands, when the rock pools are exposed by low tides, numbers of sea-urchins (*Echinometra*) may be seen burrowing in rounded cavities in the rocks, which they had made both in the calcareous sand-rock and the volcanic conglomerate.‡ In Brazil, also, a species of *Echinometra* (*Echinometra Michelini, Dessor*) is found living in holes, not only in the sandstone, but in the gneiss rocks, and in many places the rock is fairly honeycombed by their nests.§

In Sicily there is a verse which compares the spines of the *Sea-urchin* to a hundred oars, with which it must row, carrying its little invokers; after having caught it, the Sicilian children scatter a little salt over it and sing:—

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* Forbes's 'British Star-fishes,' p. 170.

† Ibid. p. 154.

‡ 'A Naturalist on the Challenger.'

§ 'Scientific result of Agassiz,' "Journey to Brazil," p. 36.

> "Vócami, Vócami, centu rimi
> Vócami, Vócami, centu rimi
> (Row for me, row for me, hundred oars).

The *Sea-urchin* moves and the children are delighted.*

In Dalmatia, *Echini* are used as bait, when pounded, in the basket traps called *Nasse*, and they are also recommended as a cure for diarrhœa.

Echinus esculentus, the real *Oursin comestible*, or *Châtaigne*, is found in the Mediterranean, and also on the coast of Brittany, and I have seen specimens from the roadstead of Brest. Mr. R. Jones (as quoted by the Rev. J. Wood, in his 'Natural History,' p. 722) gives a most amusing description of sea-egg fishing in the Bay of Naples, saying, "I had not swam very far from the beach before I found myself surrounded by some fifty or sixty human heads, the bodies belonging to which were invisible, and interspersed among these perhaps an equal number of pairs of feet sticking out of the water. As I approached the spot, the entire scene became sufficiently ludicrous and bewildering. Down went a head, up came a pair of heels; down went a pair of heels, up came a head; and as something like a hundred people were all diligently practising the same manœuvre, the strange vicissitude from heels to head, and head to heels, going on simultaneously, was rather a puzzling spectacle. On inquiry, it proved that these divers were engaged in fishing for *Sea-urchins*, which are especially valuable just before they deposit their eggs: the roe, as the aggregate egg-masses are termed, being large, and in as much repute as the 'soft roe' of the herring."

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* 'Zoological Mythology,' vol. ii. p. 336.

The Fuegian women dive to collect sea-eggs, both in winter and summer; and large sea-eggs are found in the Bay of Concepçion, which are highly esteemed by the Chilians, and eaten raw.

The species of sea-egg, *Echinometra Michelini*, previously mentioned, has moderately long dark purple spines, and is exceedingly abundant in places on the coast of Brazil in the province of Espirito Santo, and is used as food by the natives of the village of Guarapary.

Echinidæ were also eaten by the ancients, and were said to be tender and full of pleasant juice, but apt to turn on the stomach; but they were considered good if eaten with sharp mead, parsley, and mint.*

Demetrius, the Scepsian, says that "a Lacedæmonian, once being invited to a banquet, when some sea-urchins were put before him on the table, took one, not knowing the proper manner in which it should be eaten, and not attending to those who were in the company to see how they ate it; and so he put it in his mouth with the skin or shell and all, and began to crush the sea-urchin with his teeth; and being exceedingly disgusted with what he was eating, and not perceiving how to get rid of the taste, he said, 'Oh, what nasty food! I will not now be so effeminate as to eject it, but I will never take it again.'"†

A friend of mine once tasted a sea-urchin raw, while she was travelling in the south of Europe, as it was highly recommended, and considered quite a delicate morsel; but she told me that it was very unpalatable, and rather bitter, and she had not the courage to swallow it, like the Lacedæmonian; however, I have eaten one, and did not dislike it.

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* Athenæus, 'Deipn.' vol. i. bk. iii. p. 41.

† Idem. vol. i. bk. iii. c. 41. p. 152.

In Corfu, in the villages by the sea, a species of *Echinus* is a favourite dish, and allowed, with oysters, to be eaten in Lent, except on the strict days. In Greece it is considered as vegetable food.

At Marseilles, baskets are seen in the fish-market filled with the beautiful green sea-ribbon, *Zostera marina,* on which are placed sea-eggs.* I noticed that the upper portion of the shell was carefully cut off to show the orange-coloured oval mass within, and the contents of three or four are generally emptied into one shell, as there is not much in *one* only. Sea-eggs are usually brought to the market at Marseilles in October.

There are four species of *Echini* eaten, viz. *Echinus melo* (*l'oursin melon*), in Corsica and Algeria; *Echinus lividus* (*l'oursin livide*), at Naples; *Echinus esculentus* (*l'oursin commun* or *châtaigne*), in Provence; and *Echinus granulosus.*

Echinus esculentus is called in Feroese *Eyilkier.*

They are usually eaten raw, like oysters, are cut into four quarters, and the flesh eaten with a spoon.†

To Cook Echini.—Boil them as you would boil eggs, and eat them with sippets of bread.

Generally considered in season in the autumn. The sea-egg becomes red like a crab when it is cooked, and is said to resemble it in flavour.

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* 'Reisse-Erinnerungen aus Spanien,' von E. A. Rossmässler.

† 'La Vie et les Mœurs des Animaux,' par Louis Figuier.

The following are the Italian names for *Echini*—*Rizzo di mar*, *Castagne de mar*, *Tartuffoli*, *Melon de mar*; and, according to Mr. Faber, they are eaten in small quantities at Trieste and Fiume, and very generally by the Greek sailors, when in season.*

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* 'The Fisheries of the Adriatic.'

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ERRATA.

Page 1, line 5, for Pholas Dactylus, read Pholas dactylus.
,, 6, line 15, for masilius, read Marsilius.
,, 11, note, for moluses, read molluscs.
,, 13, line 28, for Solen Siliqua, read Solen siliqua.
,, 18, line 12, for Psammobia Vespertina, read Psammobia vespertina.
,, 22, line 3, for Mactra Solida, read Mactra solida.
,, 25, line 16, for Tapes Pullastra, read Tapes pullastra.
,, 31, line 11, for Henmare read Kenmare.
,, 33, line 17, for *Venus Verrucosa*, read *Venus verrucosa.*
,, 33, line 23, for *Venus Gallina*, read *Venus gallina.*
,, 34, line 2, for *Venus Mercenaria*, read *Venus mercenaria.*
,, 34, line 21, for *Venus Mercenaria*, read *Venus mercenaria.*
,, 55, line 22, for Cardium Rusticum, or Tuberculatum, read Cardium rusticum, or tuberculatum.
,, 75, note, for Odon Desbeaux, read Odon Debeaux.
,, 102, note, for J. O. Desbeaux, read J. O. Debeaux.
,, 120, line 26, for Pecten Opercularis, read Pecten opercularis.
,, 172, line 18, for Patella Vulgata, read Patella vulgata.
,, 189, line 29, for *Trochus crassas,* read *Trochus crassus.*

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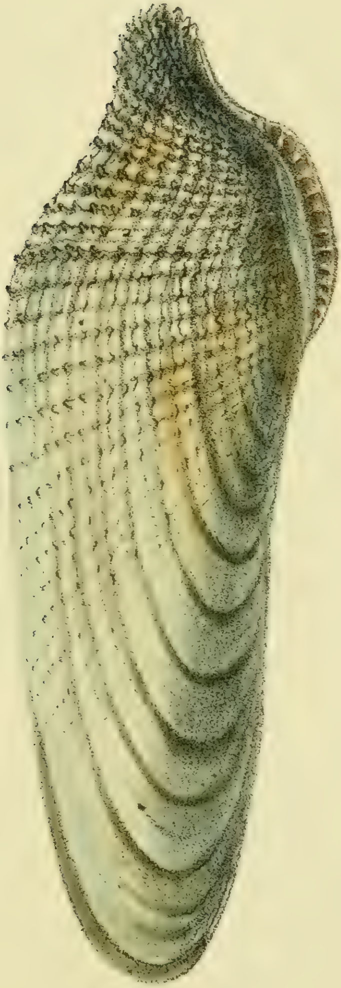

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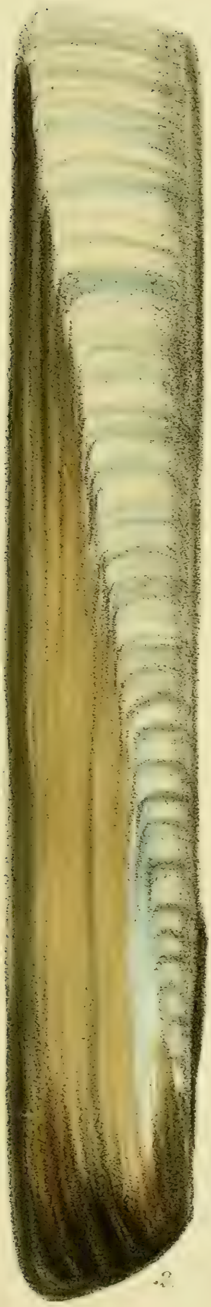
Pholas Dactylus. Piddock or Clam.



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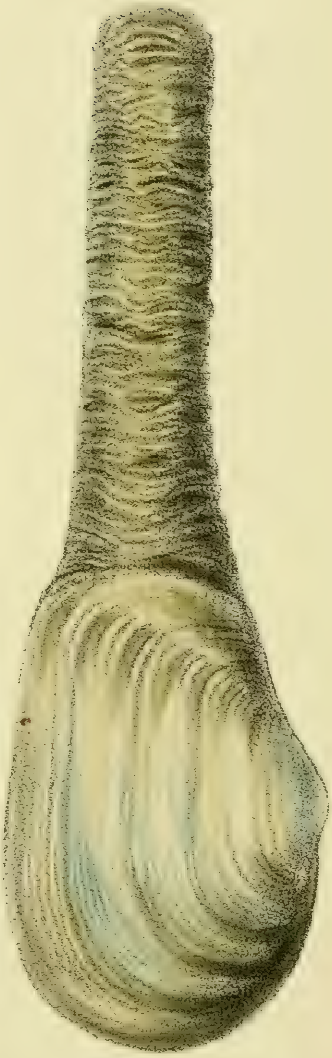

1.

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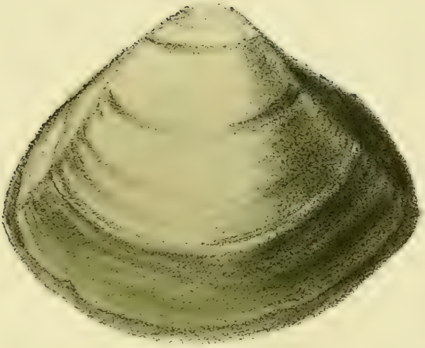
1. Mya truncata — Gaper.
2. Solen siliqua, or Razor shell.



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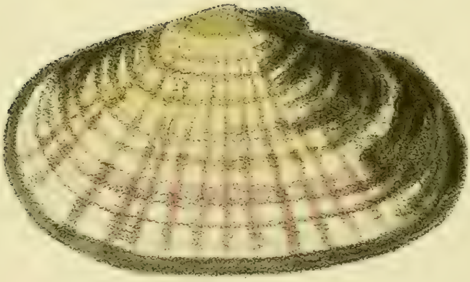

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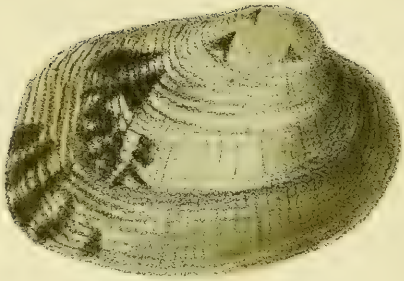
1. Psammobia Vespertina. The setting Sun.
2. Mactra Solida, or Trough shell.



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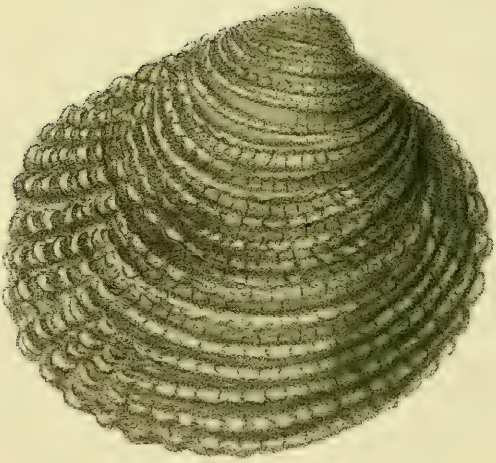

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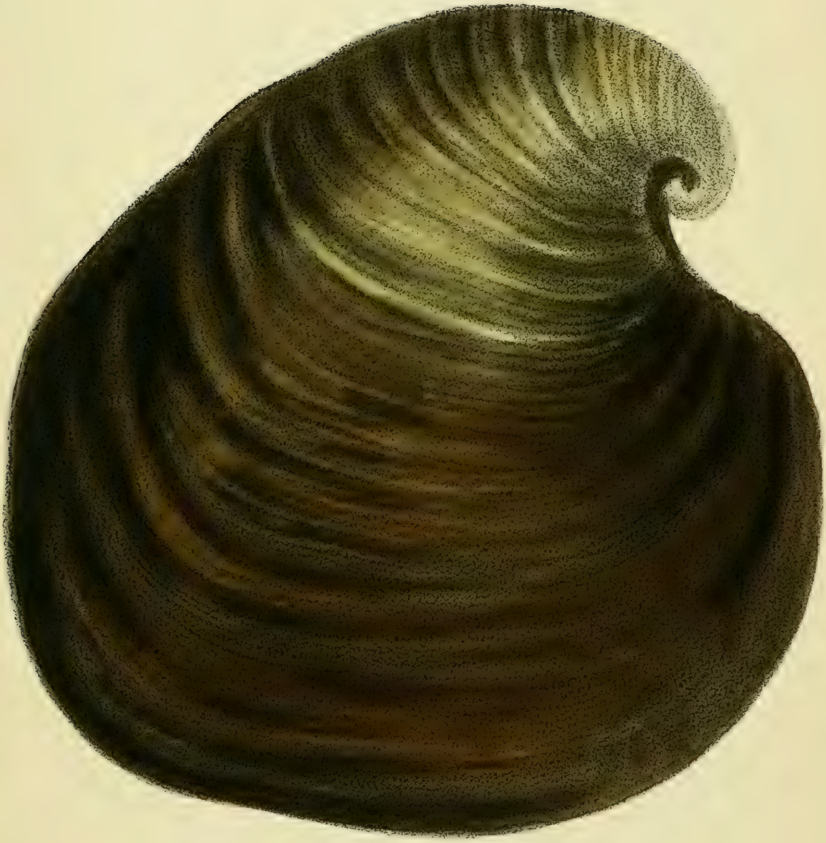
1. Tapes pullustra. Pullet.
2. Venus Verrucosa. Warty Venus.

6.



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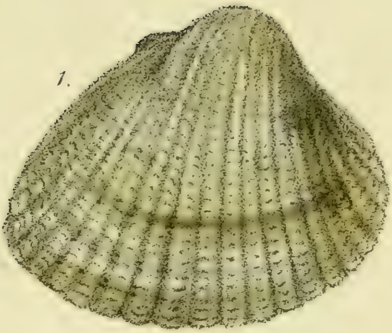
Isocardia Cor. _ Heart shell or Oxhorn Cockle.

1.



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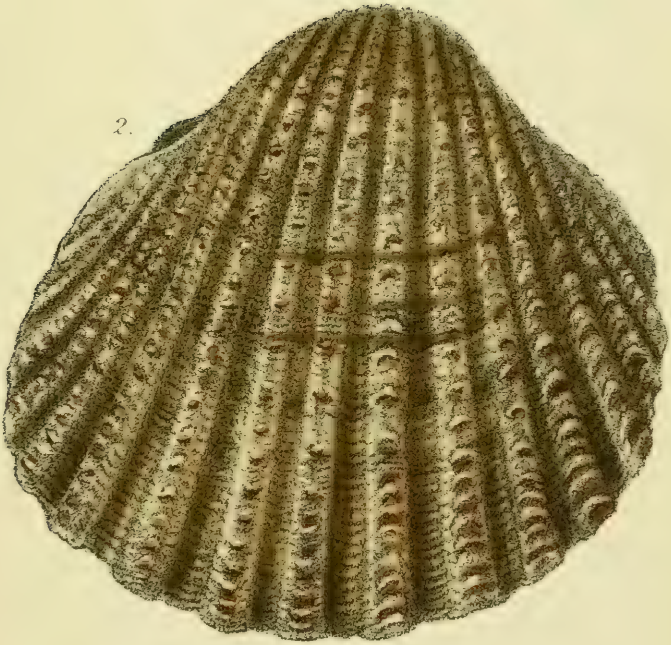

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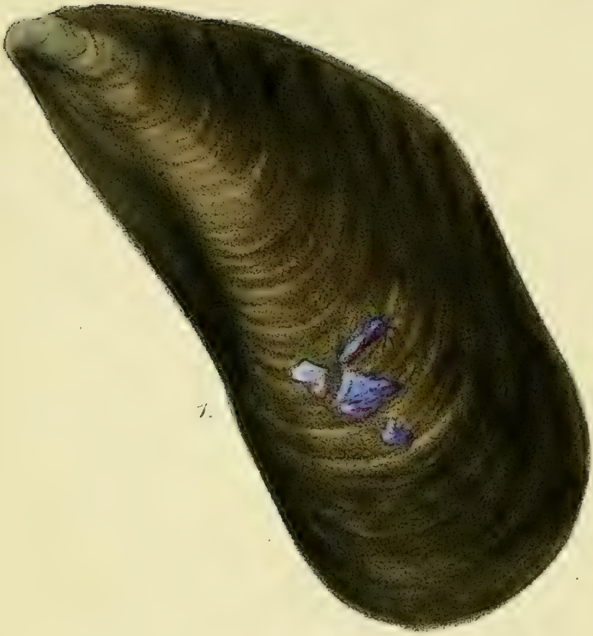
1. Cardium edule _ Common cockle.
2. Cardium rusticum _ Red nose cockle.

8.



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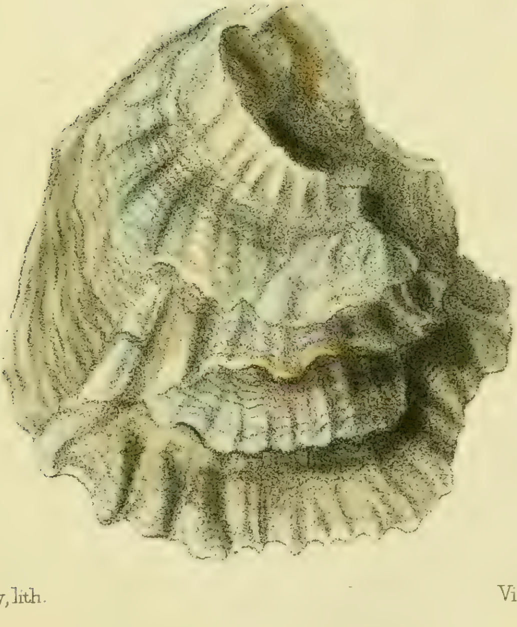

2.

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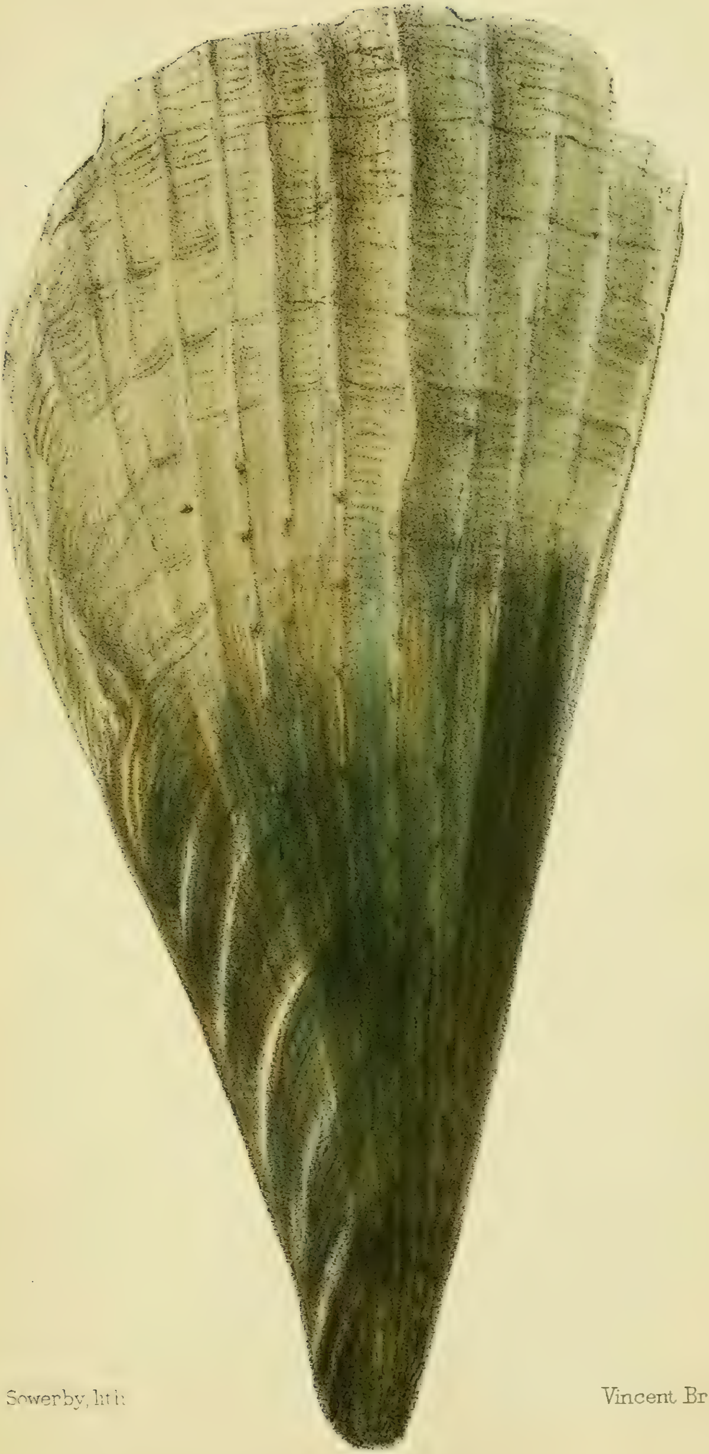
1. Mytilus edulis. Common Mussel.
2. Ostrea edulis. Oyster

9.



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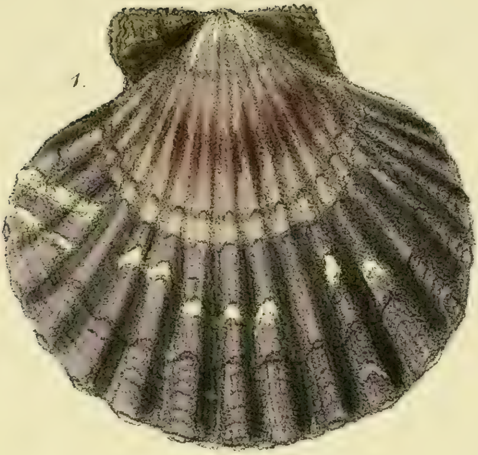
Pinna pectinata. Sea-wing

10.

1.



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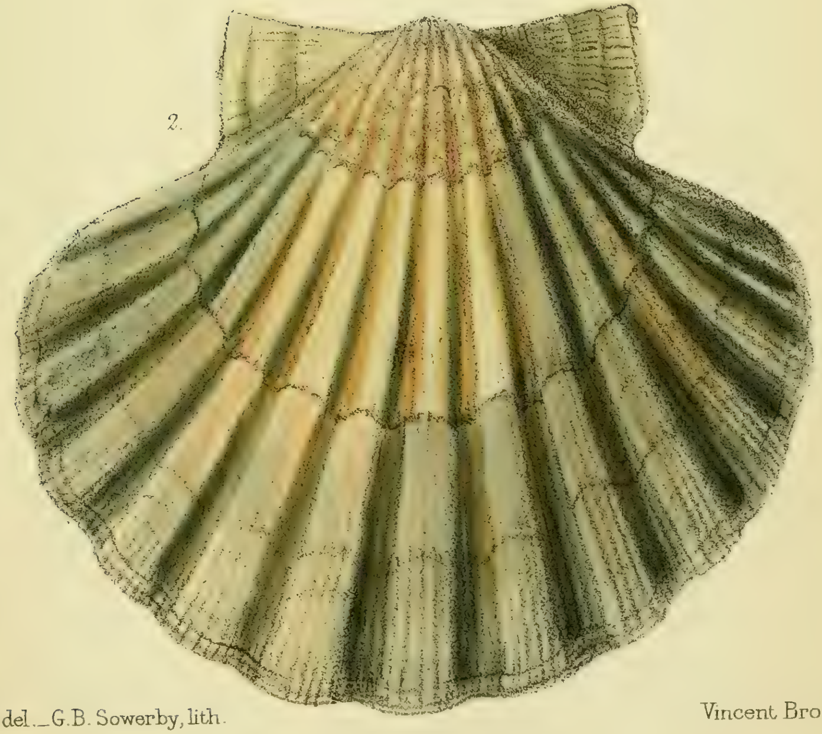

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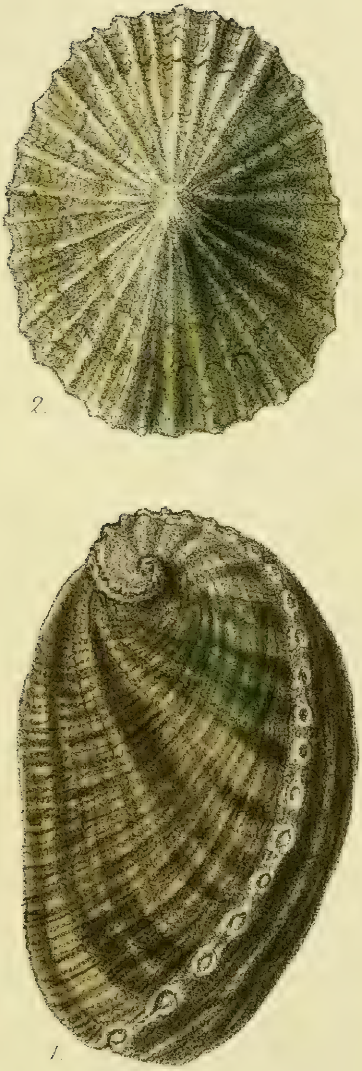
1. Pecten Opercularis or Painted scallop.
2. Pecten maximus, Scallop.



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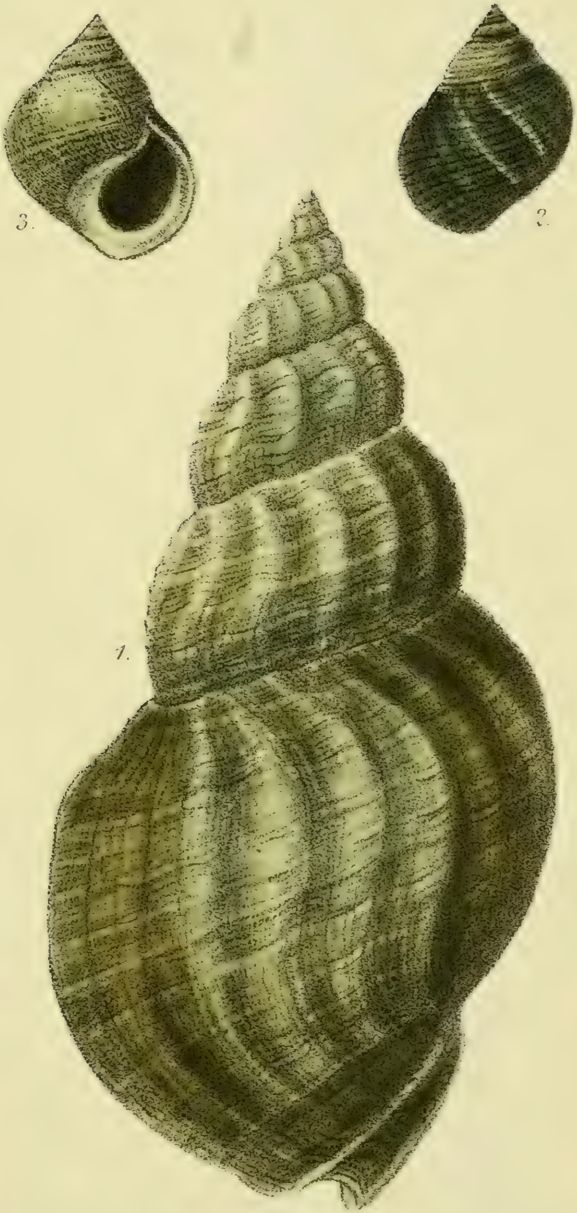
1. Haliotis tuberculata, Ear-shell, or Sea-Ear.
2. Patella vulgata. Limpet

Pl.



M.L. del. — G.B. Sowerby, lith.

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1. Buccinum undatum. Whelk.
2. 3. Litorina litorea. Periwinkle.

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